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ABSTRACT

A project was conducted to determine if the instructional materials for production agriculture classes taught in the public schools in Texas contained information that was relevant to the essential elements of mathematics and science at the secondary level. The project was carried out through a number of steps including (1) reviewing the state Basic Curriculum Guide for Production Agriculture and related materials to identify the materials relevant to mathematics and science; (2) developing a matrix (table) of opportunities for students in vocational agriculture (Basic Curriculum) to develop concepts and skills (essential elements) in mathematics and science; (3) developing a specific list of the essential elements relating to secondary-level mathematics; (4) conducting workshops for vocational agriculture teachers to ensure use of the project product (the skills matrix); and (5) ensuring the use of the matrix and the list with special populations. The skills were identified through a jury of experts and a questionnaire sent to the teachers and students from a random sample of 300 vocational agriculture programs. From the information gathered, a brief table was developed on vocational-agricultural student materials contributing to student learning of the basics. The main part of this report consists of appendix 1, which provides the matrices of science and math essential elements by topic in vocational agriculture. Numeric codes for the essential elements are taken from Chapter 75 of the Texas Education Code (1984). Appendix 2 provides a list of the mathematics and sciences courses, with abbreviations used in appendix 1. Appendix 3 provides a six-page list of vocational agriculture topics for both instructor and student materials, with numeric codes, arranged by course title. (KC)

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IDENTIFICATION OF MATH AND SCIENCE CONCEPTS, SKILLS, AND EXPERIENCES PROVIDED IN VOCATIONAL AGRICULTURE IN TEXAS

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AND

DEPARTMENT OF AGRICULTURAL EDUCATION
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PROJECT DIRECTOR

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TABLE OF CONTENTS

page

REPORT 1

TABLE 1 - VOCATIONAL AGRICULTURE STUDENT MATERIALS CONTRIBUTING TO STUDENT LEARNING OF BASICS . 4

APPENDIX 1 - SCIENCE AND MATHEMATICS ESSENTIAL ELEMENTS FOUND IN VOCATIONAL AGRICULTURE STUDENT MATERIALS TOPICS

SCIENCE IN VOCATIONAL AGRICULTURE I 6

MATHEMATICS IN VOCATIONAL AGRICULTURE I 30

SCIENCE IN VOCATIONAL AGRICULTURE II. 38

MATHEMATICS IN VOCATIONAL AGRICULTURE II. . . . 65

SCIENCE IN VOCATIONAL AGRICULTURE III 72

MATHEMATICS IN VOCATIONAL AGRICULTURE III . . . 80

SCIENCE IN VOCATIONAL AGRICULTURE IV. 87

MATHEMATICS IN VOCATIONAL AGRICULTURE IV. . . . 92

APPENDIX 2 - SCIENCE AND MATHEMATICS COURSE ABBREVIATIONS. 96

APPENDIX 3 - VOCATIONAL AGRICULTURE TOPICS NUMERIC CODE 97

IDENTIFICATION OF MATH AND SCIENCE CONCEPTS, SKILLS, AND EXPERIENCES PROVIDED IN VOCATIONAL AGRICULTURE IN TEXAS

The objective of the project was to determine if the instructional materials for production agriculture classes taught in the public schools in the state of Texas, contained information that was relevant to, and that was contributing to the student's education toward the essential elements of mathematics and science at the secondary level.

Specific objectives were:

1. Review the Basic Curriculum Guide for Production Agriculture in Texas and related instructional materials to identify those curricular materials relevant to the essential elements of mathematics and science, secondary level.

2. Develop a matrix (table) of opportunities for students in vocational agriculture (Basic Curriculum) to develop concepts and skills (essential elements) in mathematics and science.

3. Identify the mathematics and science concepts and skills developed through opportunities in vocational agriculture.

4. Determine if vocational agriculture is contributing to students' education in the "basics."

5. Develop a specific list of the essential elements relating to secondary-level mathematics.

6. Conduct large group (informational) sessions and small group (interactive, working) sessions for vocational agriculture teachers to ensure use of the project product.

7. The matrix of essential elements and the listing of essential elements will provide for the special population groups (limited english proficiency, handicapped, disadvantaged, displaced homemaker, single head of household, part or full time employment, persons in non-traditional vocations, women, men, American Indian, or Alaskan native, Asian or Pacific Islander, Black, Hispanic, White.

The project advisory committee met to make suggestions and for approval of the project methods on October 31, 1985. The meeting was held at the Texas Education Agency, located at 1701 North Congress, William B. Travis State Office Building in Austin, Texas. The advisory committee consisted of the following members:

1. Michael Loftice
2. Wayne Neely
3. Doug Roming
4. Missy Swartz
5. Inman White

Following the advisory committee approval of the methodology, a jury of experts consisting of math, science, and vocational agriculture teachers examined the production agriculture instructional materials. The jury was originally comprised of three mathematics teachers, four science teachers, and four vocational agriculture teachers.
The teachers chosen for the jury were:

1. Deborah Dean
2. Deanie Gold
3. Eugenia Heard
4. Randy Hunter
5. Mike Loftice
6. Frank Metzer
7. Laura Petty
8. Jack Richards
9. Gradyne Sennette
10. Frank Shafer

Jack Richards was unable to attend the meeting of the jury of experts due to a death in his family. The reluctance by school administrators to allow teachers to serve on the jury during school hours, with the project paying for a substitute teacher was unexpected. This is admirable in regards to student learning, but made the project somewhat more difficult to conduct. As a result of this attitude, the jury met on Saturday, December 14, 1985 at the Vocational Instructional Service Center.

The jury was divided into groups with the two math teachers and two vocational agriculture teachers being in one group, and two groups of two science teachers and one vocational agriculture teacher. The vocational agriculture teachers were present as "resource people" for the math or science teachers. The vocational agriculture instructional materials were examined by the groups to determine which materials met math or science essential elements and what those essential elements were.

Based on the findings of the jury of experts, a questionnaire for the teachers and students of vocational agriculture was developed. A random sample of 300 vocational agriculture programs was selected.

The questionnaire was pilot tested at three high schools, that were not in the random sample. Corrections were made as necessary and approval of the revised questionnaire was received from TEA.

The randomly selected programs were randomly assigned to one of four groups. Two treatment groups of one hundred programs received one teacher questionnaire and 15 student questionnaires for Vocational Agriculture I and Vocational Agriculture II respectively. Two treatment groups of fifty vocational agriculture programs received one teacher questionnaire for Vocational Agriculture III and Vocational Agriculture IV respectively.

Vocational Agriculture I questionnaires were mailed April 16, 1986 while Vocational Agriculture II questionnaires were mailed April 18, 1986. The teacher questionnaires for Vocational Agriculture III and for Vocational Agriculture IV were mailed April 24, 1986.

The number of responses for each group are:

	Teacher Numbers	Student Numbers	Program % Response
VOCATIONAL AGRICULTURE I	59	778	59%
VOCATIONAL AGRICULTURE II.	61	711	61%
VOCATIONAL AGRICULTURE III	30	0*	60%
VOCATIONAL AGRICULTURE IV.	29	0*	58%

* No requests for completed Vo. Ag. III & IV student questionnaires were made.

Of the 59 programs responding to Vocational Agriculture I questionnaires the mean number of returned student questionnaires was 13 while the mean number of student questionnaires from the 61 programs responding to the Vocational Agriculture II questionnaires was 11.

The data collection process yielded information that showed the contribution made by student materials in vocational agriculture to the student's learning of the "basics". From this information, the following tables have been developed. The tables identify the subject matter area, the class level, the number of student material topics produced for that field of study, and the number of materials containing math, science, both math and science, or neither math nor science.

TABLE 1 VOCATIONAL AGRICULTURE STUDENT MATERIALS CONTRIBUTING TO STUDENT LEARNING OF THE BASICS

ANIMAL SCIENCE

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
VOCATIONAL AGRICULTURE I	13	16	13	1	17
VOCATIONAL AGRICULTURE II	10	11	9	0	12
VOCATIONAL AGRICULTURE III	8	11	8	0	11
VOCATIONAL AGRICULTURE IV	2	1	2	1	4
TOTALS	33	39	32	2	44
PERCENT OF TOPICS	75	89	73	4	

SOIL SCIENCE

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
VOCATIONAL AGRICULTURE I	5	6	4	0	7
VOCATIONAL AGRICULTURE II	4	7	3	1	9
VOCATIONAL AGRICULTURE III	6	5	5	3	9
VOCATIONAL AGRICULTURE IV	3	5	2	0	6
TOTALS	18	23	14	4	31
PERCENT OF TOPICS	58	74	45	13	

AGRICULTURAL MECHANICS

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
VOCATIONAL AGRICULTURE I	11	13	9	1	16
VOCATIONAL AGRICULTURE II	12	12	12	1	13
VOCATIONAL AGRICULTURE III	6	9	6	0	9
VOCATIONAL AGRICULTURE IV	9	14	8	1	16
TOTALS	38	48	35	3	54
PERCENT OF TOPICS	70	89	65	6	

PLANT SCIENCE

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
VOCATIONAL AGRICULTURE I	5	13	5	0	13
VOCATIONAL AGRICULTURE II	4	13	4	0	13
VOCATIONAL AGRICULTURE III	3	5	3	1	6
VOCATIONAL AGRICULTURE IV	*	*	*	*	*
TOTALS	12	31	12	1	32
PERCENT OF TOPICS	38	97	38	3	

AGRICULTURAL MANAGEMENT

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
VOCATIONAL AGRICULTURE I	*	*	*	*	0
VOCATIONAL AGRICULTURE II	*	*	*	*	0
VOCATIONAL AGRICULTURE III	14	0	0	3	17
VOCATIONAL AGRICULTURE IV	8	0	0	3	11
TOTALS	22	0	0	6	28
PERCENT OF TOPICS	79	0	0	21	

	MATH	SCIENCE	BOTH	NEITHER	TOPICS
TOTAL NUMBER OF TOPICS	123	141	93	16	189
PERCENT OF TOTAL TOPICS	65	75	49	8	

Note. * indicates that this subject matter area was not taught at the corresponding vocational agriculture class level. These recommendations were from the BASIC CURRICULUM GUIDE FOR PRODUCTION AGRICULTURE IN TEXAS.

While table 1 contains information about student materials topics, some of the teacher materials contain information covering math and science essential elements for which there are no student topics produced. These subject matter areas include supervised experience programs and records and environmental protection and energy conservation. These subject matter areas are listed in the matrix of math and science essential elements that are contained in teaching materials for vocational agriculture (production ag.) for the state.

The tables depicting the matrices of science and math essential elements by topics in vocational agriculture are on the following pages. The essential elements for science and mathematics and the topics in vocational agriculture are presented in "abbreviated form. The abbreviations used for courses in science and mathematics are explained in Appendix 2. Numeric codes for specific essential elements in science and mathematics are taken directly from Chapter 75 of the Texas Education Code (1984). Similarly, the numeric code used for topics in vocational agriculture is explained in Appendix 3. Finally, the code used to describe the extent of coverage of essential elements is as follows: "B" = brief; "M" = moderate; "W"= well covered.

The information gained from this research has been beneficial in several ways. First, the status of the curriculum materials has been assessed. This has allowed the curriculum development specialist to become more conscious of the "basics" that are being written into the curriculum materials. The information from this research has also been presented at the annual inservice conference for teachers of vocational agriculture. By utilizing the findings, these teachers will be able to educate their students more effectively.

The presentation of the findings of this research at inservice training should make the vocational agriculture teachers more aware of the "basics" that they teach. This increased awareness should help teachers show the student how the mathematics and science taught in other high school courses relate to and are used in practical "everyday" situations. In other words, teachers could give the students a reason for learning math and science.

VOC AG I ANIMAL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL #	COVERAGE	COURSE
2B	8000	B	BIO1
10A	8000	B	BIO1
3	8000	B	BIO1
3A	8000	B	BIO2
7A	8000	B	BIO2
7B	8000	B	BIO2
7C	8000	B	BIO2
10B	8000	B	BIO2
3A	8000	B	ENVIR SCI
2B	8000	B	INTRO BIO
3B	8000	B	INTRO BIO
2C	8000	B	INTRO BIO
2A	8005	M	ANAT&PHYS
4A	8005	M	ANAT&PHYS
10B	8005	M	ANAT&PHYS
2B	8006	B	BIO1
10A	8006	B	BIO1
3	8006	B	BIO1
3A	8006	B	BIO2
7A	8006	B	BIO2
7B	8006	B	BIO2
7C	8006	B	BIO2
10B	8006	B	BIO2
3A	8006	B	ENVIR SCI
2B	8006	B	INTRO BIO
3B	8006	B	INTRO BIO
2C	8006	B	INTRO BIO
2A	8007	M	ANAT&PHYS
4A	8007	M	ANAT&PHYS
10B	8007	M	ANAT&PHYS
2A	8008	M	ANAT&PHYS
4A	8008	M	ANAT&PHYS
10B	8008	M	ANAT&PHYS
2A	8009	W	ANAT&PHYS
4A	8009	W	ANAT&PHYS
10B	8009	M	ANAT&PHYS
2B	8009	W	ANAT&PHYS
4B	8009	W	ANAT&PHYS
2A	8011	M	ANAT&PHYS
4A	8011	M	ANAT&PHYS
4A	8011	M	ANAT&PHYS
2B	8012	B	BIO1
10A	8012	B	BIO1
3	8012	B	BIO1
3A	8012	B	BIO2
7A	8012	B	BIO2
7B	8012	B	BIO2
7C	8012	B	BIO2
10B	8012	B	BIO2
3A	8012	B	ENVIR SCI

2B	8012	B	INTRO BIO
3B	8012	B	INTRO BIO
2C	8012	B	INTRO BIO
2B	8013	B	BIO1
10A	8013	B	BIO1
3	8013	B	BIO1
3A	8013	B	BIO2
7A	8013	B	BIO2
7B	8013	B	BIO2
7C	8013	B	BIO2
10B	8013	B	BIO2
3A	8013	B	ENVIR SCI
2B	8013	B	INTRO BIO
3B	8013	B	INTRO BIO
2C	8013	B	INTRO BIO
2B	8014	B	BIO1
10A	8014	B	BIO1
3	8014	B	BIO1
3A	8014	B	BIO2
7A	8014	B	BIO2
7B	8014	B	BIO2
7C	8014	B	BIO2
10B	8014	B	BIO2
3A	8014	B	ENVIR SCI
2B	8014	B	INTRO BIO
3B	8014	B	INTRO BIO
2C	8014	B	INTRO BIO
2B	8015	B	BIO1
10A	8015	B	BIO1
3	8015	B	BIO1
3A	8015	B	BIO2
7A	8015	B	BIO2
7B	8015	B	BIO2
7C	8015	B	BIO2
10B	8015	B	BIO2
3A	8015	B	ENVIR SCI
2B	8015	B	INTRO BIO
3B	8015	B	INTRO BIO
2C	8015	B	INTRO BIO
2A	8016	M	ANAT&PHYS
4A	8016	M	ANAT&PHYS
4A	8016	M	ANAT&PHYS
4C	8017	B	INTRO BIO
3A	8018	B	INTRO BIO
3B	8018	B	INTRO BIO
3C	8018	B	INTRO BIO
4D	8018	B	INTRO BIO
2A	8018	M	ANAT&PHYS
4A	8018	M	ANAT&PHYS
2B	8018	M	ANAT&PHYS
1A	8019	M	BIO1
1A	8019	W	INTRO BIO
2B	8019	M	ANAT&PHYS
4B	8019	M	ANAT&PHYS

3A	8021	B	INTRO BIO
3B	8021	B	INTRO BIO
3C	8021	B	INTRO BIO
4D	8021	B	INTRO BIO
2A	8021	M	ANAT&PHYS
4A	8021	M	ANAT&PHYS
2B	8021	M	ANAT&PHYS
4B	8021	M	ANAT&PHYS
2B	8037	B	BIO1
10A	8037	B	BIO1
3	8037	B	BIO1
3A	8037	B	BIO2
7A	8037	B	BIO2
7B	8037	B	BIO2
7C	8037	B	BIO2
10B	8037	B	BIO2
3A	8037	B	ENVIR SCI
2B	8037	B	INTRO BIO
3B	8037	B	INTRO BIO
2C	8037	B	INTRO BIO

VOC AG I SOIL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL #	COVERAGE	COURSE
2A	8051	B	CHEM1
2B	8051	B	CHEM1
3A	8051	B	CHEM1
4A	8051	B	CHEM1
4B	8051	B	CHEM1
5A	8051	B	CHEM1
5B	8051	B	CHEM1
6A	8051	B	CHEM1
6B	8051	B	CHEM1
7B	8051	B	CHEM1
8	8051	B	CHEM1
10B	8051	B	CHEM1
1A	8051	W	GEOLOGY
1B	8051	W	GEOLOGY
2A	8051	W	GEOLOGY
2B	8051	W	GEOLOGY
3A	8051	W	GEOLOGY
3B	8051	W	GEOLOGY
5A	8051	W	GEOLOGY
5B	8051	W	GEOLOGY
6A	8051	W	GEOLOGY
6B	8051	W	GEOLOGY
7A	8051	W	GEOLOGY
7B	8051	W	GEOLOGY
8	8051	W	GEOLOGY
9A	8051	W	GEOLOGY
9B	8051	W	GEOLOGY
10	8051	W	GEOLOGY
2A	8051	M	PHYS SCI
2B	8051	M	PHYS SCI
2C	8051	M	PHYS SCI
4A	8051	M	PHYS SCI
4B	8051	M	PHYS SCI
5A	8051	M	PHYS SCI
5B	8051	M	PHYS SCI
6A	8051	M	PHYS SCI
6B	8051	M	PHYS SCI
7C	8051	M	PHYS SCI
8	8051	M	PHYS SCI
9A	8051	M	PHYS SCI
9B	8051	M	PHYS SCI
10C	8051	M	PHYS SCI
2A	8052	B	CHEM1
2B	8052	B	CHEM1
3A	8052	B	CHEM1
4A	8052	B	CHEM1
4B	8052	B	CHEM1
5A	8052	B	CHEM1
5B	8052	B	CHEM1

6A	8052	B CHEM1
6B	8052	B CHEM1
7B	8052	B CHEM1
8	8052	B CHEM1
10B	8052	B CHEM1
1A	8052	W GEOLOGY
1B	8052	W GEOLOGY
2A	8052	W GEOLOGY
2B	8052	W GEOLOGY
3A	8052	W GEOLOGY
3B	8052	W GEOLOGY
5A	8052	W GEOLOGY
5B	8052	W GEOLOGY
6A	8052	W GEOLOGY
6B	8052	W GEOLOGY
7A	8052	W GEOLOGY
7B	8052	W GEOLOGY
8	8052	W GEOLOGY
9A	8052	W GEOLOGY
9B	8052	W GEOLOGY
10	8052	W GEOLOGY
2A	8052	M PHYS SCI
2B	8052	M PHYS SCI
2C	8052	M PHYS SCI
4A	8052	M PHYS SCI
4B	8052	M PHYS SCI
5A	8052	M PHYS SCI
5B	8052	M PHYS SCI
6A	8052	M PHYS SCI
6B	8052	M PHYS SCI
7C	8052	M PHYS SCI
8	8052	M PHYS SCI
9A	8052	M PHYS SCI
9B	8052	M PHYS SCI
10C	8052	M PHYS SCI
2A	8053	B CHEM1
2B	8053	B CHEM1
3A	8053	B CHEM1
4A	8053	B CHEM1
4B	8053	B CHEM1
5A	8053	B CHEM1
5B	8053	B CHEM1
6A	8053	B CHEM1
6B	8053	B CHEM1
7B	8053	B CHEM1
8	8053	B CHEM1
10B	8053	B CHEM1
1A	8053	W GEOLOGY
1B	8053	W GEOLOGY
2A	8053	W GEOLOGY
2B	8053	W GEOLOGY
3A	8053	W GEOLOGY
3B	8053	W GEOLOGY
5A	8053	W GEOLOGY

5B	8053	W	GEOLOGY
6A	8053	W	GEOLOGY
6B	8053	W	GEOLOGY
7A	8053	W	GEOLOGY
7B	8053	W	GEOLOGY
8	8053	W	GEOLOGY
9A	8053	W	GEOLOGY
9B	8053	W	GEOLOGY
10	8053	W	GEOLOGY
2A	8053	M	PHYS SCI
2B	8053	M	PHYS SCI
2C	8053	M	PHYS SCI
4A	8053	M	PHYS SCI
4B	8053	M	PHYS SCI
5A	8053	M	PHYS SCI
5B	8053	M	PHYS SCI
6A	8053	M	PHYS SCI
6B	8053	M	PHYS SCI
7C	8053	M	PHYS SCI
8	8053	M	PHYS SCI
9A	8053	M	PHYS SCI
9B	8053	M	PHYS SCI
10C	8053	M	PHYS SCI
2C	8054	B	BIO1
7C	8054	B	BIO1
2A	8054	B	BIO2
2B	8054	B	BIO2
7C	8054	B	BIO2
3B	8054	B	INTRO BIO
3C	8054	B	INTRO BIO
4A	8054	B	INTRPHYSCI
4E	8054	B	INTRPHYSCI
1E	8054	B	INTRPHYSCI
2A	8054	B	PHYS SCI
2B	8054	B	PHYS SCI
2A	8055	B	BIO2
2B	8055	B	BIO2
7C	8055	B	BIO2
3B	8055	B	INTRO BIO
3C	8055	B	INTRO BIO
4A	8055	B	INTRPHYSCI
4E	8055	B	INTRPHYSCI
1E	8055	B	INTRPHYSCI
2A	8055	B	PHYS SCI
2B	8055	B	PHYS SCI
2C	8056	B	BIO1
2C	8056	B	BIO1
7C	8056	B	BIO1
7C	8056	B	BIO1
2A	8056	B	BIO2
2B	8056	B	BIO2
7C	8056	B	BIO2
3B	8056	B	INTRO BIO
3C	8056	B	INTRO BIO

4A	8056	B	INTRPHYSCI
4E	8056	B	INTRPHYSCI
1E	8056	B	INTRPHYSCI
2A	8056	B	PHYS SCI
2B	8056	B	PHYS SCI
2C	8057	B	BIO1
7C	8057	B	BIO1
2A	8057	B	BIO2
2B	8057	B	BIO2
7C	8057	B	BIO2
2A	8057	B	CHEM1
2B	8057	B	CHEM1
3A	8057	B	CHEM1
4A	8057	B	CHEM1
4B	8057	B	CHEM1
5A	8057	B	CHEM1
5B	8057	B	CHEM1
6A	8057	B	CHEM1
6B	8057	B	CHEM1
7B	8057	B	CHEM1
8	8057	B	CHEM1
10B	8057	B	CHEM1
1A	8057	W	GEOLOGY
1B	8057	W	GEOLOGY
2A	8057	W	GEOLOGY
2B	8057	W	GEOLOGY
3A	8057	W	GEOLOGY
3B	8057	W	GEOLOGY
5A	8057	W	GEOLOGY
5B	8057	W	GEOLOGY
6A	8057	W	GEOLOGY
6B	8057	W	GEOLOGY
7A	8057	W	GEOLOGY
7B	8057	W	GEOLOGY
8	8057	W	GEOLOGY
9A	8057	W	GEOLOGY
9B	8057	W	GEOLOGY
10	8057	W	GEOLOGY
3B	8057	B	INTRO BIO
3C	8057	B	INTRO BIO
4A	8057	B	INTRPHYSCI
4E	8057	B	INTRPHYSCI
1E	8057	B	INTRPHYSCI
2A	8057	M	PHYS SCI
2B	8057	M	PHYS SCI
2C	8057	M	PHYS SCI
4A	8057	M	PHYS SCI
4B	8057	M	PHYS SCI
5A	8057	M	PHYS SCI
5B	8057	M	PHYS SCI
6A	8057	M	PHYS SCI
6B	8057	M	PHYS SCI
7C	8057	M	PHYS SCI
8	8057	M	PHYS SCI

9A	8057	M	PHYS SCI
9B	8057	M	PHYS SCI
10C	8057	M	PHYS SCI

VOC AG I PLANT SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL #	COVERAGE	COURSE
1B	8058	B	ENVIR SCI
2A	8058	B	BIO1
2B	8058	B	BIO1
2C	8058	B	BIO1
3	8058	B	BIO1
7C	8058	B	BIO1
10A	8058	B	BIO1
5A	8058	B	BIO2
5B	8058	B	BIO2
6A	8058	B	BIO2
6B	8058	B	BIO2
7A	8058	B	BIO2
7C	8058	B	BIO2
10B	8058	B	BIO2
1B	8059	B	ENVIR SCI
2A	8059	B	BIO1
2B	8059	B	BIO1
2C	8059	B	BIO1
3	8059	B	BIO1
7C	8059	B	BIO1
10A	8059	B	BIO1
5A	8059	B	BIO2
5B	8059	B	BIO2
6A	8059	B	BIO2
6B	8059	B	BIO2
7A	8059	B	BIO2
7C	8059	B	BIO2
10B	8059	B	BIO2
1B	8060	W	ENVIR SCI
2A	8060	W	BIO1
2B	8060	W	BIO1
2C	8060	W	BIO1
3	8060	W	BIO1
7C	8060	W	BIO1
10A	8060	W	BIO1
5A	8060	W	BIO2
5B	8060	W	BIO2
6A	8060	W	BIO2
6B	8060	W	BIO2
7A	8060	W	BIO2
7C	8060	W	BIO2
10B	8060	W	BIO2
1B	8061	W	ENVIR SCI
2A	8061	W	BIO1
2B	8061	W	BIO1
2C	8061	W	BIO1
3	8061	W	BIO1
7C	8061	W	BIO1
10A	8061	W	BIO1

5A	8061	W	BIO2
5B	8061	W	BIO2
6A	8061	W	BIO2
6B	8061	W	BIO2
7A	8061	W	BIO2
7C	8061	W	BIO2
10B	8061	W	BIO2
1B	8062	W	ENVIR SCI
2A	8062	W	BIO1
2B	8062	W	BIO1
2C	8062	W	BIO1
3	8062	W	BIO1
7C	8062	W	BIO1
10A	8062	W	BIO1
5A	8062	W	BIO2
5B	8062	W	BIO2
6A	8062	W	BIO2
6B	8062	W	BIO2
7A	8062	W	BIO2
7C	8062	W	BIO2
10B	8062	W	BIO2
1B	8063	B	ENVIR SCI
2A	8063	B	BIO1
2B	8063	B	BIO1
2C	8063	B	BIO1
3	8063	B	BIO1
7C	8063	B	BIO1
10A	8063	B	BIO1
5A	8063	B	BIO2
5B	8063	B	BIO2
6A	8063	B	BIO2
6B	8063	B	BIO2
7A	8063	B	BIO2
7C	8063	B	BIO2
10B	8063	B	BIO2
1B	8064	B	ENVIR SCI
2A	8064	B	BIO1
2B	8064	B	BIO1
2C	8064	B	BIO1
3	8064	B	BIO1
7C	8064	B	BIO1
10A	8064	B	BIO1
5A	8064	B	BIO2
5B	8064	B	BIO2
6A	8064	B	BIO2
6B	8064	B	BIO2
7A	8064	B	BIO2
7C	8064	B	BIO2
10B	8064	B	BIO2
1B	8065	W	ENVIR SCI
2A	8065	W	BIO1
2B	8065	W	BIO1
2C	8065	W	BIO1
3	8065	W	BIO1

7C	8065	W	BIO1
10A	8065	W	BIO1
5A	8065	W	BIO2
5B	8065	W	BIO2
6A	8065	W	BIO2
6B	8065	W	BIO2
7A	8065	W	BIO2
7C	8065	W	BIO2
10B	8065	W	BIO2
1B	8067	B	ENVIR SCI
2A	8067	B	BIO1
2B	8067	B	BIO1
2C	8067	B	BIO1
3	8067	B	BIO1
7C	8067	B	BIO1
10A	8067	B	BIO1
5A	8067	B	BIO2
5B	8067	B	BIO2
6A	8067	B	BIO2
6B	8067	B	BIO2
7A	8067	B	BIO2
7C	8067	B	BIO2
10B	8067	B	BIO2
1B	8068	B	ENVIR SCI
2A	8068	B	BIO1
2B	8068	B	BIO1
2C	8068	B	BIO1
3	8068	B	BIO1
7C	8068	B	BIO1
10A	8068	B	BIO1
5A	8068	B	BIO2
5B	8068	B	BIO2
6A	8068	B	BIO2
6B	8068	B	BIO2
7A	8068	B	BIO2
7C	8068	B	BIO2
10B	8068	B	BIO2
1B	8069	B	ENVIR SCI
2A	8069	B	BIO1
2B	8069	B	BIO1
2C	8069	B	BIO1
3	8069	B	BIO1
7C	8069	B	BIO1
10A	8069	B	BIO1
5A	8069	B	BIO2
5B	8069	B	BIO2
6A	8069	B	BIO2
6B	8069	B	BIO2
7A	8069	B	BIO2
7C	8069	B	BIO2
10B	8069	B	BIO2
1B	8070	B	ENVIR SCI
2A	8070	B	BIO1
2B	8070	B	BIO1

2C	8070	B	BI01
3	8070	B	BI01
7C	8070	B	BI01
10A	8070	B	BI01
5A	8070	B	BI02
5B	8070	B	BI02
6A	8070	B	BI02
6B	8070	B	BI02
7A	8070	B	BI02
7C	8070	B	BI02
10B	8070	B	BI02

VOC AG I PLANT SCIENCE (SCIENCE 2)

ESSENTIAL ELEMENTS	MATERIAL #	COVERAGE	COURSE
1A	8058	B	INTRO BIO
2A	8058	B	INTRO BIO
2B	8058	B	INTRO BIO
3A	8058	B	INTRO BIO
3B	8058	B	INTRO BIO
3C	8058	B	INTRO BIO
4C	8058	B	INTRO BIO
1A	8059	B	INTRO BIO
2A	8059	B	INTRO BIO
2B	8059	B	INTRO BIO
3A	8059	B	INTRO BIO
3B	8059	B	INTRO BIO
3C	8059	B	INTRO BIO
4C	8059	B	INTRO BIO
1A	8060	W	INTRO BIO
2A	8060	W	INTRO BIO
2B	8060	W	INTRO BIO
3A	8060	W	INTRO BIO
3B	8060	W	INTRO BIO
3C	8060	W	INTRO BIO
4C	8060	W	INTRO BIO
1A	8061	W	INTRO BIO
2A	8061	W	INTRO BIO
2B	8061	W	INTRO BIO
3A	8061	W	INTRO BIO
3B	8061	W	INTRO BIO
3C	8061	W	INTRO BIO
4C	8061	W	INTRO BIO
1A	8062	W	INTRO BIO
2A	8062	W	INTRO BIO
2B	8062	W	INTRO BIO
3A	8062	W	INTRO BIO
3B	8062	W	INTRO BIO
3C	8062	W	INTRO BIO
4C	8062	W	INTRO BIO
1A	8063	B	INTRO BIO
2A	8063	B	INTRO BIO
2B	8063	B	INTRO BIO
3A	8063	B	INTRO BIO
3B	8063	B	INTRO BIO
3C	8063	B	INTRO BIO
4C	8063	B	INTRO BIO
1A	8064	B	INTRO BIO
2A	8064	B	INTRO BIO
2B	8064	B	INTRO BIO
3A	8064	B	INTRO BIO
3B	8064	B	INTRO BIO
3C	8064	B	INTRO BIO
4C	8064	B	INTRO BIO
1A	8065	W	INTRO BIO

2A	8065	W	INTRO BIO
2B	8065	W	INTRO BIO
3A	8065	W	INTRO BIO
3B	8065	W	INTRO BIO
3C	8065	W	INTRO BIO
4C	8065	W	INTRO BIO
2A	8066	B	CHEM1
2B	8066	B	CHEM1
4A	8066	B	CHEM1
4B	8066	B	CHEM1
5A	8066	B	CHEM1
5B	8066	B	CHEM1
1A	8067	B	INTRO BIO
2A	8067	B	INTRO BIO
2B	8067	B	INTRO BIO
3A	8067	B	INTRO BIO
3B	8067	B	INTRO BIO
3C	8067	B	INTRO BIO
4C	8067	B	INTRO BIO
1A	8068	B	INTRO BIO
2A	8068	B	INTRO BIO
2B	8068	B	INTRO BIO
3A	8068	B	INTRO BIO
3B	8068	B	INTRO BIO
3C	8068	B	INTRO BIO
4C	8068	B	INTRO BIO
4A	8068	B	PHYS SCI
5A	8068	B	PHYS SCI
5B	8068	B	PHYS SCI
7B	8068	B	PHYS SCI
7C	8068	B	PHYS SCI
8	8068	B	PHYS SCI
10C	8068	B	PHYS SCI
1A	8069	B	INTRO BIO
2A	8069	B	INTRO BIO
2B	8069	B	INTRO BIO
3A	8069	B	INTRO BIO
3B	8069	B	INTRO BIO
3C	8069	B	INTRO BIO
4C	8069	B	INTRO BIO
1A	8070	B	INTRO BIO
2A	8070	B	INTRO BIO
2B	8070	B	INTRO BIO
3A	8070	B	INTRO BIO
3B	8070	B	INTRO BIO
3C	8070	B	INTRO BIO
4C	8070	B	INTRO BIO

VOC AG I AGRI. MECHANICS (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1A	8022	M	CHEM 1
2A	8022	M	CHEM 1
2B	8022	M	CHEM 1
3A	8022	M	CHEM 1
3B	8022	M	CHEM 1
4A	8022	M	CHEM 1
4B	8022	M	CHEM 1
7B	8022	M	CHEM 1
10A	8022	M	CHEM 1
10B	8022	M	CHEM 1
1	8022	M	PHYSICS1
2	8022	M	PHYSICS1
3B	8022	M	PHYSICS1
4	8022	M	PHYSICS1
5A	8022	M	PHYSICS1
5B	8022	M	PHYSICS1
7A	8022	M	PHYSICS1
7B	8022	M	PHYSICS1
7C	8022	M	PHYSICS1
8	8022	M	PHYSICS1
10A	8022	M	PHYSICS1
10B	8022	M	PHYSICS1
1A	8023	M	CHEM 1
2A	8023	M	CHEM 1
2B	8023	M	CHEM 1
3A	8023	M	CHEM 1
3B	8023	M	CHEM 1
4A	8023	M	CHEM 1
4B	8023	M	CHEM 1
7B	8023	M	CHEM 1
10A	8023	M	CHEM 1
10B	8023	M	CHEM 1
1	8023	M	PHYSICS1
2	8023	M	PHYSICS1
3B	8023	M	PHYSICS1
4	8023	M	PHYSICS1
5A	8023	M	PHYSICS1
5B	8023	M	PHYSICS1
7A	8023	M	PHYSICS1
7B	8023	M	PHYSICS1
7C	8023	M	PHYSICS1
8	8023	M	PHYSICS1
10A	8023	M	PHYSICS1
10B	8023	M	PHYSICS1
1A	8024	M	CHEM 1
2A	8024	M	CHEM 1
2B	8024	M	CHEM 1
3A	8024	M	CHEM 1
3B	8024	M	CHEM 1

4A	8024	M CHEM 1
4B	8024	M CHEM 1
7B	8024	M CHEM 1
10A	8024	M CHEM 1
10B	8024	M CHEM 1
1	8024	M PHYSICS1
2	8024	M PHYSICS1
3B	8024	M PHYSICS1
4	8024	M PHYSICS1
5A	8024	M PHYSICS1
5B	8024	M PHYSICS1
7A	8024	M PHYSICS1
7B	8024	M PHYSICS1
7C	8024	M PHYSICS1
8	8024	M PHYSICS1
10A	8024	M PHYSICS1
10B	8024	M PHYSICS1
1A	8025	M CHEM 1
2A	8025	M CHEM 1
2B	8025	M CHEM 1
3A	8025	M CHEM 1
3B	8025	M CHEM 1
4A	8025	M CHEM 1
4B	8025	M CHEM 1
7B	8025	M CHEM 1
10A	8025	M CHEM 1
10B	8025	M CHEM 1
1	8025	M PHYSICS1
2	8025	M PHYSICS1
3B	8025	M PHYSICS1
4	8025	M PHYSICS1
5A	8025	M PHYSICS1
5B	8025	M PHYSICS1
7A	8025	M PHYSICS1
7B	8025	M PHYSICS1
7C	8025	M PHYSICS1
8	8025	M PHYSICS1
10A	8025	M PHYSICS1
10B	8025	M PHYSICS1
1A	8026	M CHEM 1
2A	8026	M CHEM 1
2B	8026	M CHEM 1
3A	8026	M CHEM 1
3B	8026	M CHEM 1
4A	8026	M CHEM 1
4B	8026	M CHEM 1
7B	8026	M CHEM 1
10A	8026	M CHEM 1
10B	8026	M CHEM 1
1	8026	M PHYSICS1
2	8026	M PHYSICS1
3B	8026	M PHYSICS1
4	8026	M PHYSICS1
5A	8026	M PHYSICS1

5B	8026	M	PHYSICS1
7A	8026	M	PHYSICS1
7B	8026	M	PHYSICS1
7C	8026	M	PHYSICS1
8	8026	M	PHYSICS1
10A	8026	M	PHYSICS1
10B	8026	M	PHYSICS1
1A	8027	M	CHEM 1
2A	8027	M	CHEM 1
2B	8027	M	CHEM 1
3A	8027	M	CHEM 1
3B	8027	M	CHEM 1
4A	8027	M	CHEM 1
4B	8027	M	CHEM 1
7B	8027	M	CHEM 1
10A	8027	M	CHEM 1
10B	8027	M	CHEM 1
1	8027	M	PHYSICS1
2	8027	M	PHYSICS1
3B	8027	M	PHYSICS1
4	8027	M	PHYSICS1
5A	8027	M	PHYSICS1
5B	8027	M	PHYSICS1
7A	8027	M	PHYSICS1
7B	8027	M	PHYSICS1
7C	8027	M	PHYSICS1
8	8027	M	PHYSICS1
10A	8027	M	PHYSICS1
10B	8027	M	PHYSICS1
1A	8028	M	CHEM 1
2A	8028	M	CHEM 1
2B	8028	M	CHEM 1
3A	8028	M	CHEM 1
3B	8028	M	CHEM 1
4A	8028	M	CHEM 1
4B	8028	M	CHEM 1
7B	8028	M	CHEM 1
10A	8028	M	CHEM 1
10B	8028	M	CHEM 1
1	8028	M	PHYSICS1
2	8028	M	PHYSICS1
3B	8028	M	PHYSICS1
4	8028	M	PHYSICS1
5A	8028	M	PHYSICS1
5B	8028	M	PHYSICS1
7A	8028	M	PHYSICS1
7B	8028	M	PHYSICS1
7C	8028	M	PHYSICS1
8	8028	M	PHYSICS1
10A	8028	M	PHYSICS1
10B	8028	M	PHYSICS1
2A	8030	M	CHEM 1
2B	8030	M	CHEM 1
3A	8030	M	CHEM 1

3B	8030	M	CHEM 1
4A	8030	M	CHEM 1
4B	8030	M	CHEM 1
7B	8030	M	CHEM 1
10A	8030	M	CHEM 1
10B	8030	M	CHEM 1
1	8030	M	PHYSICS1
2	8030	M	PHYSICS1
3B	8030	M	PHYSICS1
4	8030	M	PHYSICS1
5A	8030	M	PHYSICS1
5B	8030	M	PHYSICS1
7A	8030	M	PHYSICS1
7B	8030	M	PHYSICS1
7C	8030	M	PHYSICS1
8	8030	M	PHYSICS1
10A	8030	M	PHYSICS1
10B	8030	M	PHYSICS1
1A	8031	M	CHEM 1
2A	8031	M	CHEM 1
2B	8031	M	CHEM 1
3A	8031	M	CHEM 1
3B	8031	M	CHEM 1
4A	8031	M	CHEM 1
4B	8031	M	CHEM 1
7B	8031	M	CHEM 1
10A	8031	M	CHEM 1
10B	8031	M	CHEM 1
1A	8032	M	CHEM 1
2A	8032	M	CHEM 1
2B	8032	M	CHEM 1
3A	8032	M	CHEM 1
3B	8032	M	CHEM 1
4A	8032	M	CHEM 1
4B	8032	M	CHEM 1
7B	8032	M	CHEM 1
10A	8032	M	CHEM 1
10B	8032	M	CHEM 1
1A	8033	M	CHEM 1
2A	8033	M	CHEM 1
2B	8033	M	CHEM 1
3A	8033	M	CHEM 1
3B	8033	M	CHEM 1
4A	8033	M	CHEM 1
4B	8033	M	CHEM 1
7B	8033	M	CHEM 1
10A	8033	M	CHEM 1
10B	8033	M	CHEM 1
1A	8034	M	CHEM 1
2A	8034	M	CHEM 1
2B	8034	M	CHEM 1
3A	8034	M	CHEM 1
3B	8034	M	CHEM 1
4A	8034	M	CHEM 1

4B	8034	M	CHEM 1
7B	8034	M	CHEM 1
10A	8034	M	CHEM 1
10B	8034	M	CHEM 1
3A	8113	M	CHEM 1
1A	8113	M	CHEM 1
4A	8113	M	CHEM 1
4B	8113	M	CHEM 1
7B	8113	M	CHEM 1
10A	8113	M	CHEM 1
10B	8113	M	CHEM 1
1	8113	M	PHYSICS1
2	8113	M	PHYSICS1
3B	8113	M	PHYSICS1
4	8113	M	PHYSICS1
5A	8113	M	PHYSICS1
5B	8113	M	PHYSICS1
7A	8113	M	PHYSICS1
7B	8113	M	PHYSICS1
7C	8113	M	PHYSICS1
8	8113	M	PHYSICS1
10A	8113	M	PHYSICS1
10B	8113	M	PHYSICS1

VOC AG I AGRI. MECHANICS (SCIENCE 2)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1A	8022	M	INTRPHYSCI
2B	8022	M	PHYS SCI
4B	8022	M	PHYS SCI
7A	8022	M	PHYS SCI
7C	8022	M	PHYS SCI
8	8022	M	PHYS SCI
10A	8022	M	PHYS SCI
1A	8022	M	GEOLOGY
5A	8022	M	GEOLOGY
1A	8023	M	INTRPHYSCI
2B	8023	M	PHYS SCI
4B	8023	M	PHYS SCI
7A	8023	M	PHYS SCI
7C	8023	M	PHYS SCI
8	8023	M	PHYS SCI
10A	8023	M	PHYS SCI
1A	8023	M	GEOLOGY
5A	8023	M	GEOLOGY
1A	8024	M	INTRPHYSCI
2B	8024	M	PHYS SCI
4B	8024	M	PHYS SCI
7A	8024	M	PHYS SCI
7C	8024	M	PHYS SCI
8	8024	M	PHYS SCI
10A	8024	M	PHYS SCI
1A	8024	M	GEOLOGY
5A	8024	M	GEOLOGY
1A	8025	M	INTRPHYSCI
2B	8025	M	PHYS SCI
4B	8025	M	PHYS SCI
7A	8025	M	PHYS SCI
7C	8025	M	PHYS SCI
8	8025	M	PHYS SCI
10A	8025	M	PHYS SCI
1A	8025	M	GEOLOGY
5A	8025	M	GEOLOGY
1A	8026	M	INTRPHYSCI
2B	8026	M	PHYS SCI
4B	8026	M	PHYS SCI
7A	8026	M	PHYS SCI
7C	8026	M	PHYS SCI
8	8026	M	PHYS SCI
10A	8026	M	PHYS SCI
1A	8026	M	GEOLOGY
5A	8026	M	GEOLOGY
1A	8027	M	INTRPHYSCI
2B	8027	M	PHYS SCI
4B	8027	M	PHYS SCI
7A	8027	M	PHYS SCI

7C	8027	M	PHYS SCI
8	8027	M	PHYS SCI
10A	8027	M	PHYS SCI
1A	8027	M	GEOLOGY
5A	8027	M	GEOLOGY
1A	8030	M	INTRPHYSCI
2B	8030	M	PHYS SCI
4B	8030	M	PHYS SCI
1A	8030	M	GEOLOGY
5A	8030	M	GEOLOGY
1B	8031	M	INTRPHYSCI
1C	8031	M	INTRPHYSCI
3B	8031	M	INTRPHYSCI
3C	8031	M	INTRPHYSCI
4B	8031	M	INTRPHYSCI
4C	8031	M	INTRPHYSCI
2A	8031	M	PHYS SCI
2B	8031	M	PHYS SCI
4B	8031	M	PHYS SCI
5A	8031	M	PHYS SCI
7B	8031	M	PHYS SCI
2A	8031	M	GEOLOGY
3A	8031	M	GEOLOGY
1B	8032	M	INTRPHYSCI
1C	8032	M	INTRPHYSCI
3B	8032	M	INTRPHYSCI
3C	8032	M	INTRPHYSCI
4B	8032	M	INTRPHYSCI
4C	8032	M	INTRPHYSCI
2A	8032	M	PHYS SCI
2B	8032	M	PHYS SCI
4B	8032	M	PHYS SCI
5A	8032	M	PHYS SCI
7B	8032	M	PHYS SCI
1B	8033	M	INTRPHYSCI
1C	8033	M	INTRPHYSCI
3B	8033	M	INTRPHYSCI
3C	8033	M	INTRPHYSCI
4B	8033	M	INTRPHYSCI
4C	8033	M	INTRPHYSCI
2A	8033	M	PHYS SCI
2B	8033	M	PHYS SCI
4B	8033	M	PHYS SCI
5A	8033	M	PHYS SCI
7B	8033	M	PHYS SCI
1B	8034	M	INTRPHYSCI
1C	8034	M	INTRPHYSCI
3B	8034	M	INTRPHYSCI
3C	8034	M	INTRPHYSCI
4B	8034	M	INTRPHYSCI
4C	8034	M	INTRPHYSCI
2A	8034	M	PHYS SCI
2B	8034	M	PHYS SCI
4B	8034	M	PHYS SCI

5A	8034	M	PHYS SCI
7B	8034	M	PHYS SCI
1B	8035	M	INTRPHYSCI
1C	8035	M	INTRPHYSCI
3B	8035	M	INTRPHYSCI
3C	8035	M	INTRPHYSCI
4B	8035	M	INTRPHYSCI
4C	8035	M	INTRPHYSCI
2A	8035	M	PHYS SCI
2B	8035	M	PHYS SCI
4B	8035	M	PHYS SCI
5A	8035	M	PHYS SCI
7B	8035	M	PHYS SCI
1A	8113	M	INTRPHYSCI
2B	8113	M	PHYS SCI
4B	8113	M	PHYS SCI
7A	8113	M	PHYS SCI
7C	8113	M	PHYS SCI
8	8113	M	PHYS SCI
10A	8113	M	PHYS SCI
1A	8113	M	GEOLOGY
5A	8113	M	GEOLOGY

VOC AG I SOEP (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
10B	1015A	B	BIO1
10B	1015A	B	BIO2
10B	1015A	B	PHYSICS1
10C	1015A	B	BIO1
10C	1015A	B	PHYS SCI
3B	1015A	B	PHYSICS1
3B	1015A	B	BIO2
6B	1015A	B	BIO1
6B	1015A	B	PHYS SCI
9B	1015A	B	BIO1
10B	1015B	B	BIO1
10B	1015B	B	BIO2
10B	1015B	B	PHYSICS1
10C	1015B	B	BIO1
10C	1015B	B	PHYS SCI
3B	1015B	B	PHYSICS1
3B	1015B	B	BIO2
6B	1015B	B	BIO1
6B	1015B	B	PHYS SCI
9B	1015B	B	BIO1
10B	1015C	B	BIO1
10B	1015C	B	BIO2
10B	1015C	B	PHYSICS1
10C	1015C	B	BIO1
10C	1015C	B	PHYS SCI
3B	1015C	B	PHYSICS1
3B	1015C	B	BIO2
6B	1015C	B	BIO1
6B	1015C	B	PHYS SCI
9B	1015C	B	BIO1
10B	1015D	B	BIO1
10B	1015D	B	BIO2
10B	1015D	B	PHYSICS1
10C	1015D	B	BIO1
10C	1015D	B	PHYS SCI
3B	1015D	B	PHYSICS1
3B	1015D	B	BIO2
5A	1015D	B	BIO1
5A	1015D	B	PHYSICS1
5A	1015D	B	PHYS SCI
5B	1015D	B	BIO1
5B	1015D	B	PHYSICS1
5B	1015D	B	PHYS SCI
6B	1015D	B	BIO1
6B	1015D	B	PHYS SCI
9B	1015D	B	BIO1
10B	1015E	B	BIO1
10B	1015E	B	BIO2
10B	1015E	B	PHYSICS1

10C	1015E	B	BIO1
10C	1015E	B	PHYS SCI
3B	1015E	B	PHYSICS1
3B	1015E	B	BIO2
6B	1015E	B	BIO1
6B	1015E	B	PHYS SCI
9B	1015E	B	BIO1
10B	1015F	B	BIO1
10B	1015F	B	BIO2
10B	1015F	B	PHYSICS1
10C	1015F	B	BIO1
10C	1015F	B	PHYS SCI
3B	1015F	B	PHYSICS1
3B	1015F	B	BIO2
6B	1015F	B	BIO1
6B	1015F	B	PHYS SCI
9B	1015F	B	BIO1

VOC AG 1 ANIMAL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1C	8005	B	FOM
3E	8005	B	FOM
4C	8005	B	FOM
5F	8005	B	FOM
6	8005	B	FOM
1A	8005	B	CONS. MATH
1B	8005	B	CONS. MATH
1D	8005	B	CONS. MATH
2 all	8005	B	CONS. MATH
3 all	8005	B	CONS. MATH
4 all	8005	B	CONS. MATH
5A	8005	B	PRE ALG
5D	8005	B	PRE ALG
5F	8005	B	PRE ALG
3B	8005	B	PRE ALG
3B	8005	B	ALG.1
5C	8005	B	ALG.1
11A	8005	B	GEO
1C	8006	B	FOM
3E	8006	B	FOM
4C	8006	B	FOM
5F	8006	B	FOM
6	8006	B	FOM
1A	8006	B	CONS. MATH
1B	8006	B	CONS. MATH
1D	8006	B	CONS. MATH
2 all	8006	B	CONS. MATH
3 all	8006	B	CONS. MATH
4 all	8006	B	CONS. MATH
5A	8006	B	PRE ALG
5D	8006	B	PRE ALG
5F	8006	B	PRE ALG
3B	8006	B	ALG.1
5C	8006	B	ALG.1
11A	8006	B	GEO
1C	8007	B	FOM
5F	8007	B	FOM
1A	8007	B	CONS. MATH
1B	8007	B	CONS. MATH
1D	8007	B	CONS. MATH
2 all	8007	B	CONS. MATH
3 all	8007	B	CONS. MATH
4 all	8007	B	CONS. MATH
5A	8007	B	PRE ALG
5D	8007	B	PRE ALG
5F	8007	B	PRE ALG
3B	8007	B	PRE ALG
1C	8008	B	FOM
5F	8008	B	FOM

1A	8008	B	CONS. MATH
1B	8008	B	CONS. MATH
1D	8008	B	CONS. MATH
2 all	8008	B	CONS. MATH
3 all	8008	B	CONS. MATH
4 all	8008	B	CONS. MATH
5A	8008	B	PRE ALG
5D	8008	B	PRE ALG
5F	8008	B	PRE ALG
3B	8008	B	PRE ALG
1C	8009	B	FOM
5F	8009	B	FOM
1A	8009	B	CONS. MATH
1B	8009	B	CONS. MATH
1D	8009	B	CONS. MATH
2 all	8009	B	CONS. MATH
3 all	8009	B	CONS. MATH
4 all	8009	B	CONS. MATH
5A	8009	B	PRE ALG
5D	8009	B	PRE ALG
5F	8009	B	PRE ALG
3B	8009	B	PRE ALG
1C	8011	B	FOM
5F	8011	B	FOM
1A	8011	B	CONS. MATH
1B	8011	B	CONS. MATH
1D	8011	B	CONS. MATH
2 all	8011	B	CONS. MATH
3 all	8011	B	CONS. MATH
4 all	8011	B	CONS. MATH
5A	8011	B	PRE ALG
5D	8011	B	PRE ALG
5F	8011	B	PRE ALG
3B	8011	B	PRE ALG
1C	8012	B	FOM
3E	8012	B	FOM
4C	8012	B	FOM
5F	8012	B	FOM
6	8012	B	FOM
1A	8012	B	CONS. MATH
1B	8012	B	CONS. MATH
1D	8012	B	CONS. MATH
2 all	8012	B	CONS. MATH
3 all	8012	B	CONS. MATH
4 all	8012	B	CONS. MATH
5A	8012	B	PRE ALG
5D	8012	B	PRE ALG
5F	8012	B	PRE ALG
3B	8012	B	ALG.1
5C	8012	B	ALG.1
11A	8012	B	GEO
1C	8013	B	FOM
3E	8013	B	FOM
4C	8013	B	FOM

5F	8013	B	FOM
6	8013	B	FOM
1A	8013	B	CONS. MATH
1B	8013	B	CONS. MATH
1D	8013	B	CONS. MATH
2 all	8013	B	CONS. MATH
3 all	8013	B	CONS. MATH
4 all	8013	B	CONS. MATH
5A	8013	B	PRE ALG
5D	8013	B	PRE ALG
5F	8013	B	PRE ALG
3B	8013	B	ALG.1
5C	8013	B	ALG.1
11A	8013	B	GEO
1C	8014	B	FOM
3E	8014	B	FOM
4C	8014	B	FOM
5F	8014	B	FOM
6	8014	B	FOM
1A	8014	B	CONS. MATH
1B	8014	B	CONS. MATH
1D	8014	B	CONS. MATH
2 all	8014	B	CONS. MATH
3 all	8014	B	CONS. MATH
4 all	8014	B	CONS. MATH
5A	8014	B	PRE ALG
5D	8014	B	PRE ALG
5F	8014	B	PRE ALG
3B	8014	B	ALG.1
5C	8014	B	ALG.1
11A	8014	B	GEO
1C	8015	B	FOM
3E	8015	B	FOM
4C	8015	B	FOM
5F	8015	B	FOM
6	8015	B	FOM
1A	8015	B	CONS. MATH
1B	8015	B	CONS. MATH
1D	8015	B	CONS. MATH
2 all	8015	B	CONS. MATH
3 all	8015	B	CONS. MATH
4 all	8015	B	CONS. MATH
5A	8015	B	PRE ALG
5D	8015	B	PRE ALG
5F	8015	B	PRE ALG
3B	8015	B	ALG.1
5C	8015	B	ALG.1
11A	8015	B	GEO
1C	8016	B	FOM
5F	8016	B	FOM
1A	8016	B	CONS. MATH
1B	8016	B	CONS. MATH
1D	8016	B	CONS. MATH
2 all	8016	B	CONS. MATH

3 all	8016	B	CONS. MATH
4 all	8016	B	CONS. MATH
5A	8016	B	PRE ALG
5D	8016	B	PRE ALG
5F	8016	B	PRE ALG
3B	8016	B	PRE ALG
4C	8019	B	PRE ALG
2A	8019	B	PRE ALG
1C	8037	B	FOM
3E	8037	B	FOM
4C	8037	B	FOM
5F	8037	B	FOM
6	8037	B	FOM
1A	8037	B	CONS. MATH
1B	8037	B	CONS. MATH
1D	8037	B	CONS. MATH
2 all	8037	B	CONS. MATH
3 all	8037	B	CONS. MATH
4 all	8037	B	CONS. MATH
5A	8037	B	PRE ALG
5D	8037	B	PRE ALG
5F	8037	B	PRE ALG
3B	8037	B	ALG.1
5C	8037	B	ALG.1
11A	8037	B	GEO

VOC AG I SOIL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1C	8051	B	FOM
3E	8051	B	FOM
5F	8051	B	FOM
1A	8051	B	CONS. MATH
3A	8051	B	PRE ALG
3C	8051	B	PRE ALG
1A	8052	B	FOM
1B	8052	B	FOM
3A	8052	B	FOM
3C	8052	B	FOM
4C	8052	B	FOM
5C	8052	B	FOM
5F	8052	B	FOM
1A	8052	B	CONS. MATH
3B	8052	B	PRE ALG
3B	8052	B	PRE ALG
5F	8052	B	PRE ALG
3A	8053	B	FOM
3C	8053	B	FOM
3D	8053	B	FOM
2A	8053	B	PRE ALG
4C	8054	B	FOM
5F	8054	B	FOM
1A	8054	B	CONS. MATH
3B	8054	B	PRE ALG
3C	8054	B	PRE ALG
5F	8054	B	PRE ALG
4C	8054	B	INFORM GEO
5B	8054	B	ALG.1
4C	8055	B	FOM
1C	8056	B	FOM
5F	8056	B	FOM
1A	8056	B	CONS. MATH
5F	8056	B	PRE ALG
5F	8056	B	PRE ALG
4C	8056	B	INFORM GEO
5B	8056	B	ALG.1

VOC AG I AG. MECHANICS (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8025	B	FOM
2A	8025	B	INFORM GEO
2A	8026	B	FOM
2A	8026	B	INFORM GEO
2A	8027	B	FOM
1B	8027	B	INFORM GEO
A1C	8027	B	INFORM GEO
2A	8028	B	FOM
1B	8028	B	INFORM GEO
A1C	8028	B	INFORM GEO
1A	8030	B	FOM
1B	8030	B	FOM
3A	8030	B	FOM
3B	8030	B	FOM
3C	8030	B	FOM
5C	8030	B	FOM
2A	8030	B	PRE ALG
4A	8030	B	PRE ALG
3B	8030	B	GEOMETRY
1A	8031	B	FOM
1B	8031	B	FOM
5C	8031	B	FOM
4C	8031	B	CONS. MATH
4A	8031	B	PRE ALG
1A	8031	B	INFORM GEO
1B	8031	B	INFORM GEO
A1C	8031	B	INFORM GEO
1A	8033	B	FOM
5C	8033	B	FOM
4C	8033	B	CONS. MATH
4A	8033	B	PRE ALG
1A	8033	B	INFORM GEO
1B	8033	B	INFORM GEO
A1C	8033	B	INFORM GEO
1A	8034	B	FOM
5C	8034	B	FOM
4C	8034	B	CONS. MATH
4A	8034	B	PRE ALG
1A	8034	B	INFORM GEO
1B	8034	B	INFORM GEO
A1C	8034	B	INFORM GEO
1A	8035	B	FOM
1B	8035	B	FOM
1C	8035	B	FOM
2A	8035	B	FOM
5C	8035	B	FOM
5E	8035	B	FOM
1A	8035	B	CONS. MATH
4A	8035	B	PRE ALG

4D	8035	B	PRE ALG
1A	8035	B	INFORM GEO
1B	8035	B	INFORM GEO
A1C	8035	B	INFORM GEO
4C	8035	B	INFORM GEO
7A	8035	B	INFORM GEO
5B	8035	B	ALG.1
5C	8035	B	GEOMETRY
1A	8036	B	FOM
1B	8036	B	FOM
5C	8036	B	FOM
4A	8036	B	PRE ALG
A1C	8036	B	INFORM GEO
2A	8113	B	FOM
2B	8113	B	FOM
3A	8113	B	FOM
3C	8113	B	FOM
3E	8113	B	FOM
2A	8113	B	PRE ALG
4D	8113	B	PRE ALG
7A	8113	B	INFORM GEO
7D	8113	B	INFORM GEO
10A	8113	B	INFORM GEO
10B	8113	B	INFORM GEO
10C	8113	B	INFORM GEO
2C	8113	B	GEOMETRY

VOC AG I SOEP (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3A	1015A	B	FOM
3E	1015A	B	FOM
5F	1015A	B	FOM
1A	1015A	B	CONS. MATH
1A	1015A	B	PRE ALG
2A	1015A	B	PRE ALG
2E	1015A	B	PRE ALG
5F	1015A	B	PRE ALG
5F	1015B	B	FOM
1A	1015B	B	CONS. MATH
5F	1015B	B	PRE ALG
3A	1015C	B	FOM
3D	1015C	B	FOM
3E	1015C	B	FOM
4C	1015C	B	FOM
4D	1015C	B	FOM
5F	1015C	B	FOM
2Aii	1015C	B	CONS. MATH
2B	1015C	B	CONS. MATH
7A	1015C	B	CONS. MATH
7B	1015C	B	CONS. MATH
2A	1015C	B	PRE ALG
3D	1015C	B	PRE ALG
4A	1015C	B	ALG.1
4B	1015C	B	ALG.1
1A	1015C	B	ALG.1
5F	1015D	B	FOM
1A	1015D	B	CONS. MATH
5F	1015D	B	PRE ALG
5F	1015E	B	FOM
1A	1015E	B	CONS. MATH
5F	1015E	B	PRE ALG

VOC AG II ANIMAL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8071	W	BIO1
2B	8071	W	BIO1
4A	8071	W	BIO1
4B	8071	W	BIO1
7A	8071	W	BIO1
7B	8071	W	BIO1
7C	8071	B	BIO1
8	8071	W	BIO1
9	8071	W	BIO1
10B	8071	W	BIO1
2A	8071	B	CHEM1
4A	8071	B	CHEM1
5A	8071	B	CHEM1
2A	8071	W	BIO2
2B	8071	W	BIO2
3A	8071	W	BIO2
4	8071	W	BIO2
7A	8071	W	BIO2
8	8071	W	BIO2
10A	8071	W	BIO2
2A	8072	W	BIO1
2B	8072	W	BIO1
4A	8072	W	BIO1
4B	8072	W	BIO1
7A	8072	W	BIO1
7B	8072	M	BIO1
7C	8072	B	BIO1
8	8072	W	BIO1
9	8072	W	BIO1
10B	8072	W	BIO1
2A	8072	B	CHEM1
4A	8072	B	CHEM1
5A	8072	B	CHEM1
2A	8072	W	BIO2
2B	8072	W	BIO2
3A	8072	W	BIO2
4	8072	W	BIO2
7A	8072	W	BIO2
8	8072	W	BIO2
10A	8072	W	BIO2
2A	8073	W	BIO1
2B	8073	W	BIO1
4A	8073	W	BIO1
4B	8073	W	BIO1
7A	8073	W	BIO1
7B	8073	M	BIO1
7C	8073	B	BIO1
8	8073	W	BIO1
9	8073	W	BIO1

10B	8073	W	BIO1
2A	8073	W	BIO2
2B	8073	W	BIO2
3A	8073	W	BIO2
4	8073	W	BIO2
7A	8073	W	BIO2
8	8073	W	BIO2
10A	8073	W	BIO2
4A	8074	M	BIO1
4B	8074	M	BIO1
8	8074	M	BIO1
10B	8074	M	BIO1
4	8074	M	BIO2
7A	8074	W	BIO2
7B	8074	M	BIO2
8	8074	M	BIO2
10A	8074	M	BIO2
10B	8074	M	BIO2
4A	8074	M	PHYS&ANAT
4B	8074	M	PHYS&ANAT
6A	8074	M	PHYS&ANAT
6B	8074	M	PHYS&ANAT
7	8074	M	PHYS&ANAT
8	8074	M	PHYS&ANAT
10A	8074	M	PHYS&ANAT
4A	8076	W	BIO1
4B	8076	W	BIO1
8	8076	W	BIO1
10B	8076	W	BIO1
2A	8076	B	CHEM1
4A	8076	B	CHEM1
5A	8076	B	CHEM1
4	8076	W	BIO2
7A	8076	W	BIO2
7B	8076	W	BIO2
8	8076	W	BIO2
10A	8076	W	BIO2
10B	8076	W	BIO2
2A	8078	M	BIO1
2B	8078	M	BIO1
3	8078	M	BIO1
8	8078	M	BIO1
10A	8078	M	BIO1
2A	8078	M	BIO2
2B	8078	M	BIO2
3A	8078	M	BIO2
7B	8078	M	BIO2
8	8078	M	BIO2
9	8078	M	BIO2
10A	8078	M	BIO2
1B	8078	M	PHYS&ANAT
2A	8078	M	PHYS&ANAT
2B	8078	M	PHYS&ANAT
3	8078	M	PHYS&ANAT

7	8078	M	PHYS&ANAT
10A	8078	M	PHYS&ANAT
1B	8078	M	INTRO BIO
2A	8078	M	INTRO BIO
2B	8078	M	INTRO BIO
2C	8078	M	INTRO BIO
3A	8078	M	INTRO BIO
3B	8078	M	INTRO BIO
4A	8078	M	INTRO BIO
4C	8078	M	INTRO BIO
4D	8078	M	INTRO BIO
2A	8079	M	BIO1
2B	8079	M	BIO1
3	8079	M	BIO1
8	8079	M	BIO1
10A	8079	M	BIO1
2A	8079	M	BIO2
2B	8079	M	BIO2
3A	8079	M	BIO2
7B	8079	M	BIO2
8	8079	M	BIO2
9	8079	M	BIO2
10A	8079	M	BIO2
1B	8079	M	PHYS&ANAT
2A	8079	M	PHYS&ANAT
2B	8079	M	PHYS&ANAT
3	8079	M	PHYS&ANAT
7	8079	M	PHYS&ANAT
10A	8079	M	PHYS&ANAT
1B	8079	M	INTRO BIO
2A	8079	M	INTRO BIO
2B	8079	M	INTRO BIO
2C	8079	M	INTRO BIO
3A	8079	M	INTRO BIO
3B	8079	M	INTRO BIO
4A	8079	M	INTRO BIO
4C	8079	M	INTRO BIO
4D	8079	M	INTRO BIO
2A	8080	M	BIO1
2B	8080	M	BIO1
3	8080	M	BIO1
8	8080	M	BIO1
10A	8080	M	BIO1
2A	8080	M	BIO2
2B	8080	M	BIO2
3A	8080	M	BIO2
7B	8080	M	BIO2
8	8080	M	BIO2
9	8080	M	BIO2
10A	8080	M	BIO2
1B	8080	M	PHYS&ANAT
2A	8080	M	PHYS&ANAT
2B	8080	M	PHYS&ANAT
3	8080	M	PHYS&ANAT

7	8080	M	PHYS&ANAT
10A	8080	M	PHYS&ANAT
1B	8080	M	INTRO BIO
2A	8080	M	INTRO BIO
2B	8080	M	INTRO BIO
2C	8080	M	INTRO BIO
3A	8080	M	INTRO BIO
3B	8080	M	INTRO BIO
4A	8080	M	INTRO BIO
4C	8080	M	INTRO BIO
4D	8080	M	INTRO BIO
2B	8081	B	BIO1
3	8081	B	BIO1
10C	8081	B	BIO1
3A	8081	B	BIO2
7A	8081	B	BIO2
10B	8081	B	BIO2
2A	8081	B	PHYS&ANAT
2B	8081	B	PHYS&ANAT
3	8081	B	PHYS&ANAT
10B	8081	B	PHYS&ANAT
2B	8082	B	BIO1
3	8082	B	BIO1
10C	8082	B	BIO1
3A	8082	B	BIO2
7A	8082	B	BIO2
10B	8082	B	BIO2
2A	8082	B	PHYS&ANAT
2B	8082	B	PHYS&ANAT
3	8082	B	PHYS&ANAT
10B	8082	B	PHYS&ANAT
2B	8083	B	BIO1
3	8083	B	BIO1
10C	8083	B	BIO1
3A	8083	B	BIO2
7A	8083	B	BIO2
10B	8083	B	BIO2
2A	8083	B	PHYS&ANAT
2B	8083	B	PHYS&ANAT
3	8083	B	PHYS&ANAT
10B	8083	B	PHYS&ANAT

VOC AG 2 SOIL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2C	8084	B	BIO1
4A	8084	B	BIO1
4A	8084	B	CHEM1
5A	8084	B	CHEM1
10A	8084	B	CHEM1
10B	8084	B	CHEM1
4A	8084	B	PHYS SCI
5A	8084	B	PHYS SCI
5B	8084	B	PHYS SCI
6B	8084	B	PHYS SCI
10A	8084	B	PHYS SCI
10C	8084	B	PHYS SCI
2B	8084	B	BIO2
6A	8084	B	BIO2
6B	8084	B	BIO2
7A	8084	B	BIO2
7C	8084	B	BIO2
10B	8084	B	BIO2
2B	8084	B	GEOLOGY
2B	8084	B	ENVIR. SCI
7A	8084	B	ENVIR. SCI
7B	8084	B	ENVIR. SCI
4B	8085	M	BIO1
5A	8085	M	BIO1
5B	8085	M	BIO1
6A	8085	M	BIO1
6B	8085	M	BIO1
7C	8085	M	BIO1
7D	8085	M	BIO1
10A	8085	M	BIO1
4A	8085	B	CHEM1
5A	8085	B	CHEM1
10A	8085	B	CHEM1
10B	8085	B	CHEM1
4A	8085	B	PHYS SCI
5A	8085	B	PHYS SCI
5B	8085	B	PHYS SCI
6B	8085	B	PHYS SCI
10A	8085	B	PHYS SCI
10C	8085	B	PHYS SCI
1A	8085	B	INTRO BIO
2C	8085	B	INTRO BIO
3A	8085	B	INTRO BIO
3B	8085	B	INTRO BIO
3C	8085	B	INTRO BIO
4C	8085	B	INTRO BIO
2A	8086	B	BIO1
2B	8086	B	BIO1
3	8086	B	BIO1

4A	8086	B	BIO1
2B	8086	B	BIO2
6A	8086	B	BIO2
6B	8086	B	BIO2
7A	8086	B	BIO2
7C	8086	B	BIO2
10B	8086	B	BIO2
2B	8086	B	ENVIR. SCI
7A	8086	B	ENVIR. SCI
7B	8086	B	ENVIR. SCI
1A	8086	B	INTRO BIO
2C	8086	B	INTRO BIO
3A	8086	B	INTRO BIO
3B	8086	B	INTRO BIO
3C	8086	B	INTRO BIO
4C	8086	B	INTRO BIO
2A	8087	B	BIO1
2B	8087	B	BIO1
4B	8087	B	BIO1
4A	8087	B	CHEM1
5A	8087	B	CHEM1
10A	8087	B	CHEM1
10B	8087	B	CHEM1
4A	8087	B	PHYS SCI
5A	8087	B	PHYS SCI
5B	8087	B	PHYS SCI
6B	8087	B	PHYS SCI
10A	8087	B	PHYS SCI
10C	8087	B	PHYS SCI
2B	8087	B	BIO2
6A	8087	B	BIO2
6B	8087	B	BIO2
7A	8087	B	BIO2
7C	8087	B	BIO2
10B	8087	B	BIO2
2B	8087	B	ENVIR. SCI
7A	8087	B	ENVIR. SCI
7B	8087	B	ENVIR. SCI
2C	8088	B	BIO1
4A	8088	B	BIO1
4B	8088	B	BIO1
4A	8088	B	CHEM1
5A	8088	B	CHEM1
10A	8088	B	CHEM1
10B	8088	B	CHEM1
4A	8088	B	PHYS SCI
5A	8088	B	PHYS SCI
5B	8088	B	PHYS SCI
6B	8088	B	PHYS SCI
10A	8088	B	PHYS SCI
10C	8088	B	PHYS SCI
2B	8088	B	BIO2
6A	8088	B	BIO2
6B	8088	B	BIO2

6B	8088	B	BIO2
7A	8088	B	BIO2
7C	8088	B	BIO2
10B	8088	B	BIO2
2B	8088	B	ENVIR. SCI
7A	8088	B	ENVIR. SCI
7B	8088	B	ENVIR. SCI
1A	8088	B	INTRO BIO
2C	8088	B	INTRO BIO
3A	8088	B	INTRO BIO
3B	8088	B	INTRO BIO
3C	8088	B	INTRO BIO
4C	8088	B	INTRO BIO

VOC AG 2 PLANT SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8094	W	BIO1
2B	8094	W	BIO1
2C	8094	W	BIO1
3	8094	W	BIO1
10A	8094	W	BIO1
10B	8094	W	BIO1
10C	8094	W	BIO1
5A	8094	W	PHYS SCI
10A	8094	W	PHYS SCI
2A	8094	W	PHYS&ANAT
2B	8094	W	PHYS&ANAT
1A	8094	W	ENVIR SCI
1B	8094	W	ENVIR SCI
2A	8094	W	ENVIR SCI
2B	8094	W	ENVIR SCI
3A	8094	W	ENVIR SCI
3B	8094	W	ENVIR SCI
2A	8095	W	BIO1
2B	8095	W	BIO1
2C	8095	W	BIO1
3	8095	W	BIO1
10A	8095	W	BIO1
10B	8095	W	BIO1
10C	8095	W	BIO1
5A	8095	W	PHYS SCI
10A	8095	W	PHYS SCI
2A	8095	W	PHYS&ANAT
2B	8095	W	PHYS&ANAT
1A	8095	W	ENVIR SCI
1B	8095	W	ENVIR SCI
2A	8095	W	ENVIR SCI
2B	8095	W	ENVIR SCI
3A	8095	W	ENVIR SCI
3B	8095	W	ENVIR SCI
2A	8096	W	BIO1
2B	8096	W	BIO1
2C	8096	W	BIO1
3	8096	W	BIO1
10A	8096	W	BIO1
10B	8096	W	BIO1
10C	8096	W	BIO1
5A	8096	W	PHYS SCI
10A	8096	W	PHYS SCI
2A	8096	W	PHYS&ANAT
2B	8096	W	PHYS&ANAT
1A	8096	W	ENVIR SCI
1B	8096	W	ENVIR SCI
2A	8096	W	ENVIR SCI
2B	8096	W	ENVIR SCI

3A	8096	W	ENVIR SCI
3B	8096	W	ENVIR SCI
2A	8097	W	BIO1
2B	8097	W	BIO1
2C	8097	W	BIO1
3	8097	W	BIO1
10A	8097	W	BIO1
10B	8097	W	BIO1
10C	8097	W	BIO1
5A	8097	W	PHYS SCI
10A	8097	W	PHYS SCI
2A	8097	W	PHYS&ANAT
2B	8097	W	PHYS&ANAT
1A	8097	W	ENVIR SCI
1B	8097	W	ENVIR SCI
2A	8097	W	ENVIR SCI
2B	8097	W	ENVIR SCI
3A	8097	W	ENVIR SCI
3B	8097	W	ENVIR SCI
2A	8098	W	BIO1
2B	8098	W	BIO1
2C	8098	W	BIO1
3	8098	W	BIO1
10A	8098	W	BIO1
10B	8098	W	BIO1
10C	8098	W	BIO1
5A	8098	W	PHYS SCI
10A	8098	W	PHYS SCI
2A	8098	W	PHYS&ANAT
2B	8098	W	PHYS&ANAT
1A	8098	W	ENVIR SCI
1B	8098	W	ENVIR SCI
2A	8098	W	ENVIR SCI
2B	8098	W	ENVIR SCI
3A	8098	W	ENVIR SCI
3B	8098	W	ENVIR SCI
2A	8099	W	BIO1
2B	8099	W	BIO1
2C	8099	W	BIO1
3	8099	W	BIO1
10A	8099	W	BIO1
10B	8099	W	BIO1
10C	8099	W	BIO1
5A	8099	W	PHYS SCI
10A	8099	W	PHYS SCI
2A	8099	W	PHYS&ANAT
2B	8099	W	PHYS&ANAT
1A	8099	W	ENVIR SCI
1B	8099	W	ENVIR SCI
2A	8099	W	ENVIR SCI
2B	8099	W	ENVIR SCI
3A	8099	W	ENVIR SCI
3B	8099	W	ENVIR SCI
2A	8100	W	BIO1

2B	8100	W	BIO1
2C	8100	W	BIO1
3	8100	W	BIO1
10A	8100	W	BIO1
10B	8100	W	BIO1
10C	8100	W	BIO1
5A	8100	W	PHYS SCI
10A	8100	W	PHYS SCI
2A	8100	W	PHYS&ANAT
2B	8100	W	PHYS&ANAT
1A	8100	W	ENVIR SCI
1B	8100	W	ENVIR SCI
2A	8100	W	ENVIR SCI
2B	8100	W	ENVIR SCI
3A	8100	W	ENVIR SCI
3B	8100	W	ENVIR SCI
2B	8101	W	BIO1
2C	8101	W	BIO1
4A	8101	W	BIO1
4B	8101	W	BIO1
6A	8101	W	BIO1
6B	8101	W	BIO1
7B	8101	W	BIO1
7C	8101	W	BIO1
10A	8101	W	BIO1
10B	8101	W	BIO1
8	8101	W	PHYS SCI
4A	8101	W	PHYS&ANAT
4B	8101	W	PHYS&ANAT
5A	8101	W	PHYS&ANAT
5B	8101	W	PHYS&ANAT
7	8101	W	PHYS&ANAT
1A	8101	W	ENVIR SCI
1B	8101	W	ENVIR SCI
2A	8101	W	ENVIR SCI
2B	8101	W	ENVIR SCI
3A	8101	W	ENVIR SCI
3B	8101	W	ENVIR SCI
2B	8102	W	BIO1
2C	8102	W	BIO1
4A	8102	W	BIO1
4B	8102	W	BIO1
6A	8102	W	BIO1
6B	8102	W	BIO1
7B	8102	W	BIO1
7C	8102	W	BIO1
10A	8102	W	BIO1
10B	8102	W	BIO1
8	8102	W	PHYS. SCI
4A	8102	W	PHYS&ANAT
4B	8102	W	PHYS&ANAT
5A	8102	W	PHYS&ANAT
5B	8102	W	PHYS&ANAT
7	8102	W	PHYS&ANAT

1A	8102	W	ENVIR SCI
1B	8102	W	ENVIR SCI
2A	8102	W	ENVIR SCI
2B	8102	W	ENVIR SCI
3A	8102	W	ENVIR SCI
3B	8102	W	ENVIR SCI
2B	8103	W	BIO1
2C	8103	W	BIO1
4A	8103	W	BIO1
4B	8103	W	BIO1
6A	8103	W	BIO1
6B	8103	W	BIO1
7B	8103	W	BIO1
7C	8103	W	BIO1
10A	8103	W	BIO1
10B	8103	W	BIO1
8	8103	W	PHYS SCI
4A	8103	W	PHYS&ANAT
4B	8103	W	PHYS&ANAT
5A	8103	W	PHYS&ANAT
5B	8103	W	PHYS&ANAT
7	8103	W	PHYS&ANAT
1A	8103	W	ENVIR SCI
1B	8103	W	ENVIR SCI
2A	8103	W	ENVIR SCI
2B	8103	W	ENVIR SCI
3A	8103	W	ENVIR SCI
3B	8103	W	ENVIR SCI
2B	8104	W	BIO1
2C	8104	W	BIO1
4A	8104	W	BIO1
4B	8104	W	BIO1
6A	8104	W	BIO1
6B	8104	W	BIO1
7B	8104	W	BIO1
7C	8104	W	BIO1
10A	8104	W	BIO1
10B	8104	W	BIO1
8	8104	W	PHYS SCI
4A	8104	W	PHYS&ANAT
4B	8104	W	PHYS&ANAT
5A	8104	W	PHYS&ANAT
5B	8104	W	PHYS&ANAT
7	8104	W	PHYS&ANAT
1A	8104	W	ENVIR SCI
1B	8104	W	ENVIR SCI
2A	8104	W	ENVIR SCI
2B	8104	W	ENVIR SCI
3A	8104	W	ENVIR SCI
3B	8104	W	ENVIR SCI
2B	8105	W	BIO1
2C	8105	W	BIO1
4A	8105	W	BIO1
4B	8105	W	BIO1

6A	8105	W	BIO1
6B	8105	W	BIO1
7B	8105	W	BIO1
7C	8105	W	BIO1
10A	8105	W	BIO1
10B	8105	W	BIO1
8	8105	W	PHYS SCI
4A	8105	W	PHYS&ANAT
4B	8105	W	PHYS&ANAT
5A	8105	W	PHYS&ANAT
5B	8105	W	PHYS&ANAT
7	8105	W	PHYS&ANAT
1A	8105	W	ENVIR SCI
1B	8105	W	ENVIR SCI
2A	8105	W	ENVIR SCI
2B	8105	W	ENVIR SCI
3A	8105	W	ENVIR SCI
3B	8105	W	ENVIR SCI

VOC AG 2 PLANT SCIENCE (SCIENCE 2)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
4A	8094	W	ENVIR SCI
4B	8094	W	ENVIR SCI
5A	8094	W	ENVIR SCI
5B	8094	W	ENVIR SCI
7A	8094	W	ENVIR SCI
7B	8094	W	ENVIR SCI
8	8094	W	ENVIR SCI
10A	8094	W	ENVIR SCI
10B	8094	W	ENVIR SCI
1A	8094	W	INTRO BIO
1B	8094	W	INTRO BIO
2A	8094	W	INTRO BIO
2B	8094	W	INTRO BIO
3A	8094	W	INTRO BIO
3B	8094	W	INTRO BIO
3C	8094	W	INTRO BIO
4A	8094	W	INTRO BIO
4B	8094	W	INTRO BIO
4C	8094	W	INTRO BIO
4D	8094	W	INTRO BIO
4A	8095	W	ENVIR SCI
4B	8095	W	ENVIR SCI
5A	8095	W	ENVIR SCI
5B	8095	W	ENVIR SCI
7A	8095	W	ENVIR SCI
7B	8095	W	ENVIR SCI
8	8095	W	ENVIR SCI
10A	8095	W	ENVIR SCI
10B	8095	W	ENVIR SCI
1A	8095	W	INTRO BIO
1B	8095	W	INTRO BIO
2A	8095	W	INTRO BIO
2B	8095	W	INTRO BIO
3A	8095	W	INTRO BIO
3B	8095	W	INTRO BIO
3C	8095	W	INTRO BIO
4A	8095	W	INTRO BIO
4B	8095	W	INTRO BIO
4C	8095	W	INTRO BIO
4D	8095	W	INTRO BIO
4A	8096	W	ENVIR SCI
4B	8096	W	ENVIR SCI
5A	8096	W	ENVIR SCI
5B	8096	W	ENVIR SCI
7A	8096	W	ENVIR SCI
7B	8096	W	ENVIR SCI
8	8096	W	ENVIR SCI
10A	8096	W	ENVIR SCI
10B	8096	W	ENVIR SCI

1A	8096	W	INTRO BIO
1B	8096	W	INTRO BIO
2A	8096	W	INTRO BIO
2B	8096	W	INTRO BIO
3A	8096	W	INTRO BIO
3B	8096	W	INTRO BIO
3C	8096	W	INTRO BIO
4A	8096	W	INTRO BIO
4B	8096	W	INTRO BIO
4C	8096	W	INTRO BIO
4D	8096	W	INTRO BIO
4A	8097	W	ENVIR SCI
4B	8097	W	ENVIR SCI
5A	8097	W	ENVIR SCI
5B	8097	W	ENVIR SCI
7A	8097	W	ENVIR SCI
7B	8097	W	ENVIR SCI
8	8097	W	ENVIR SCI
10A	8097	W	ENVIR SCI
10B	8097	W	ENVIR SCI
1A	8097	W	INTRO BIO
1B	8097	W	INTRO BIO
2A	8097	W	INTRO BIO
2B	8097	W	INTRO BIO
3A	8097	W	INTRO BIO
3B	8097	W	INTRO BIO
3C	8097	W	INTRO BIO
4A	8097	W	INTRO BIO
4B	8097	W	INTRO BIO
4C	8097	W	INTRO BIO
4D	8097	W	INTRO BIO
4A	8098	W	ENVIR SCI
4B	8098	W	ENVIR SCI
5A	8098	W	ENVIR SCI
5B	8098	W	ENVIR SCI
7A	8098	W	ENVIR SCI
7B	8098	W	ENVIR SCI
8	8098	W	ENVIR SCI
10A	8098	W	ENVIR SCI
10B	8098	W	ENVIR SCI
1A	8098	W	INTRO BIO
1B	8098	W	INTRO BIO
2A	8098	W	INTRO BIO
2B	8098	W	INTRO BIO
3A	8098	W	INTRO BIO
3B	8098	W	INTRO BIO
3C	8098	W	INTRO BIO
4A	8098	W	INTRO BIO
4B	8098	W	INTRO BIO
4C	8098	W	INTRO BIO
4D	8098	W	INTRO BIO
4A	8099	W	ENVIR SCI
4B	8099	W	ENVIR SCI
5A	8099	W	ENVIR SCI

5B	8099	W	ENVIR SCI
7A	8099	W	ENVIR SCI
7B	8099	W	ENVIR SCI
8	8099	W	ENVIR SCI
10A	8099	W	ENVIR SCI
10B	8099	W	ENVIR SCI
1A	8099	W	INTRO BIO
1B	8099	W	INTRO BIO
2A	8099	W	INTRO BIO
2B	8099	W	INTRO BIO
3A	8099	W	INTRO BIO
3B	8099	W	INTRO BIO
3C	8099	W	INTRO BIO
4A	8099	W	INTRO BIO
4B	8099	W	INTRO BIO
4C	8099	W	INTRO BIO
4D	8099	W	INTRO BIO
4A	8100	W	ENVIR SCI
4B	8100	W	ENVIR SCI
5A	8100	W	ENVIR SCI
5B	8100	W	ENVIR SCI
7A	8100	W	ENVIR SCI
7B	8100	W	ENVIR SCI
8	8100	W	ENVIR SCI
10A	8100	W	ENVIR SCI
10B	8100	W	ENVIR SCI
1A	8100	W	INTRO BIO
1B	8100	W	INTRO BIO
2A	8100	W	INTRO BIO
2B	8100	W	INTRO BIO
3A	8100	W	INTRO BIO
3B	8100	W	INTRO BIO
3C	8100	W	INTRO BIO
4A	8100	W	INTRO BIO
4B	8100	W	INTRO BIO
4C	8100	W	INTRO BIO
4D	8100	W	INTRO BIO
4A	8101	W	ENVIR SCI
4B	8101	W	ENVIR SCI
5A	8101	W	ENVIR SCI
5B	8101	W	ENVIR SCI
7A	8101	W	ENVIR SCI
7B	8101	W	ENVIR SCI
8	8101	W	ENVIR SCI
10A	8101	W	ENVIR SCI
10B	8101	W	ENVIR SCI
1A	8101	W	INTRO BIO
1B	8101	W	INTRO BIO
2A	8101	W	INTRO BIO
2B	8101	W	INTRO BIO
3A	8101	W	INTRO BIO
3B	8101	W	INTRO BIO
3C	8101	W	INTRO BIO
4A	8101	W	INTRO BIO

4B	8101	W	INTRO BIO
4C	8101	W	INTRO BIO
4D	8101	W	INTRO BIO
4A	8102	W	ENVIR SCI
4B	8102	W	ENVIR SCI
5A	8102	W	ENVIR SCI
5B	8102	W	ENVIR SCI
7A	8102	W	ENVIR SCI
7B	8102	W	ENVIR SCI
8	8102	W	ENVIR SCI
10A	8102	W	ENVIR SCI
10B	8102	W	ENVIR SCI
1A	8102	W	INTRO BIO
1B	8102	W	INTRO BIO
2A	8102	W	INTRO BIO
2B	8102	W	INTRO BIO
3A	8102	W	INTRO BIO
3B	8102	W	INTRO BIO
3C	8102	W	INTRO BIO
4A	8102	W	INTRO BIO
4B	8102	W	INTRO BIO
4C	8102	W	INTRO BIO
4D	8102	W	INTRO BIO
4A	8103	W	ENVIR SCI
4B	8103	W	ENVIR SCI
5A	8103	W	ENVIR SCI
5B	8103	W	ENVIR SCI
7A	8103	W	ENVIR SCI
7B	8103	W	ENVIR SCI
8	8103	W	ENVIR SCI
10A	8103	W	ENVIR SCI
10B	8103	W	ENVIR SCI
1A	8103	W	INTRO BIO
1B	8103	W	INTRO BIO
2A	8103	W	INTRO BIO
2B	8103	W	INTRO BIO
3A	8103	W	INTRO BIO
3B	8103	W	INTRO BIO
3C	8103	W	INTRO BIO
4A	8103	W	INTRO BIO
4B	8103	W	INTRO BIO
4C	8103	W	INTRO BIO
4D	8103	W	INTRO BIO
4A	8104	W	ENVIR SCI
4B	8104	W	ENVIR SCI
5A	8104	W	ENVIR SCI
5B	8104	W	ENVIR SCI
7A	8104	W	ENVIR SCI
7B	8104	W	ENVIR SCI
8	8104	W	ENVIR SCI
10A	8104	W	ENVIR SCI
10B	8104	W	ENVIR SCI
1A	8104	W	ENVIR SCI
1B	8104	W	INTRO BIO
	8104	W	INTRO BIO

2A	8104	W	INTRO BIO
2B	8104	W	INTRO BIO
3A	8104	W	INTRO BIO
3B	8104	W	INTRO BIO
3C	8104	W	INTRO BIO
4A	8104	W	INTRO BIO
4B	8104	W	INTRO BIO
4C	8104	W	INTRO BIO
4D	8104	W	INTRO BIO
4A	8105	W	ENVIR SCI
4B	8105	W	ENVIR SCI
5A	8105	W	ENVIR SCI
5B	8105	W	ENVIR SCI
7A	8105	W	ENVIR SCI
7B	8105	W	ENVIR SCI
8	8105	W	ENVIR SCI
10A	8105	W	ENVIR SCI
10B	8105	W	ENVIR SCI
1A	8105	W	INTRO BIO
1B	8105	W	INTRO BIO
2A	8105	W	INTRO BIO
2B	8105	W	INTRO BIO
3A	8105	W	INTRO BIO
3B	8105	W	INTRO BIO
3C	8105	W	INTRO BIO
4A	8105	W	INTRO BIO
4B	8105	W	INTRO BIO
4C	8105	W	INTRO BIO
4D	8105	W	INTRO BIO

VOC AG 2 PLANT SCIENCE (SCIENCE 3)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1E	8094	W	INTRPHYSCI
4A	8094	W	INTRPHYSCI
4C	8094	W	INTRPHYSCI
4E	8094	W	INTRPHYSCI
1	8094	W	BIO2
2A	8094	W	BIO2
2B	8094	W	BIO2
3A	8094	W	BIO2
3B	8094	W	BIO2
7A	8094	W	BIO2
7B	8094	W	BIO2
7C	8094	W	BIO2
9A	8094	W	BIO2
9B	8094	W	BIO2
10A	8094	W	BIO2
10B	8094	W	BIO2
7C	8094	W	PHYSICS
1E	8095	W	INTRPHYSCI
4A	8095	W	INTRPHYSCI
4C	8095	W	INTRPHYSCI
4E	8095	W	INTRPHYSCI
1	8095	W	BIO2
2A	8095	W	BIO2
2B	8095	W	BIO2
3A	8095	W	BIO2
3B	8095	W	BIO2
7A	8095	W	BIO2
7B	8095	W	BIO2
7C	8095	W	BIO2
9A	8095	W	BIO2
9B	8095	W	BIO2
10A	8095	W	BIO2
10B	8095	W	BIO2
7C	8095	W	PHYSICS
1E	8096	W	INTRPHYSCI
4A	8096	W	INTRPHYSCI
4C	8096	W	INTRPHYSCI
4E	8096	W	INTRPHYSCI
1	8096	W	BIO2
2A	8096	W	BIO2
2B	8096	W	BIO2
3A	8096	W	BIO2
3B	8096	W	BIO2
7A	8096	W	BIO2
7B	8096	W	BIO2
7C	8096	W	BIO2
9A	8096	W	BIO2
9B	8096	W	BIO2
10A	8096	W	BIO2

10B	8096	W	BIO2
7C	8096	W	PHYSICS
1E	8097	W	INTRPHYSCI
4A	8097	W	INTRPHYSCI
4C	8097	W	INTRPHYSCI
4E	8097	W	INTRPHYSCI
1	8097	W	BIO2
2A	8097	W	BIO2
2B	8097	W	BIO2
3A	8097	W	BIO2
3B	8097	W	BIO2
7A	8097	W	BIO2
7B	8097	W	BIO2
7C	8097	W	BIO2
9A	8097	W	BIO2
9B	8097	W	BIO2
10A	8097	W	BIO2
10B	8097	W	BIO2
7C	8097	W	PHYSICS
1E	8098	W	INTRPHYSCI
4A	8098	W	INTRPHYSCI
4C	8098	W	INTRPHYSCI
4E	8098	W	INTRPHYSCI
1	8098	W	BIO2
2A	8098	W	BIO2
2B	8098	W	BIO2
3A	8098	W	BIO2
3B	8098	W	BIO2
7A	8098	W	BIO2
7B	8098	W	BIO2
7C	8098	W	BIO2
9A	8098	W	BIO2
9B	8098	W	BIO2
10A	8098	W	BIO2
10B	8098	W	BIO2
7C	8098	W	PHYSICS
1E	8099	W	INTRPHYSCI
4A	8099	W	INTRPHYSCI
4C	8099	W	INTRPHYSCI
4E	8099	W	INTRPHYSCI
1	8099	W	BIO2
2A	8099	W	BIO2
2B	8099	W	BIO2
3A	8099	W	BIO2
3B	8099	W	BIO2
7A	8099	W	BIO2
7B	8099	W	BIO2
7C	8099	W	BIO2
9A	8099	W	BIO2
9B	8099	W	BIO2
10A	8099	W	BIO2
10B	8099	W	BIO2
7C	8099	W	PHYSICS
1E	8100	W	INTRPHYSCI

4A	8100	W	INTRPHYSCI
4C	8100	W	INTRPHYSCI
4E	8100	W	INTRPHYSCI
1	8100	W	BIO2
2A	8100	W	BIO2
2B	8100	W	BIO2
3A	8100	W	BIO2
3B	8100	W	BIO2
7A	8100	W	BIO2
7B	8100	W	BIO2
7C	8100	W	BIO2
9A	8100	W	BIO2
9B	8100	W	BIO2
10A	8100	W	BIO2
10B	8100	W	BIO2
7C	8100	W	BIO2
1	8100	W	PHYSICS
2A	8101	W	BIO2
2B	8101	W	BIO2
3A	8101	W	BIO2
3B	8101	W	BIO2
7A	8101	W	BIO2
7B	8101	W	BIO2
7C	8101	W	BIO2
9A	8101	W	BIO2
9B	8101	W	BIO2
10A	8101	W	BIO2
10B	8101	W	BIO2
7C	8101	W	BIO2
1	8101	W	PHYSICS
2A	8102	W	BIO2
2B	8102	W	BIO2
3A	8102	W	BIO2
3B	8102	W	BIO2
7A	8102	W	BIO2
7B	8102	W	BIO2
7C	8102	W	BIO2
9A	8102	W	BIO2
9B	8102	W	BIO2
10A	8102	W	BIO2
10B	8102	W	BIO2
7C	8102	W	BIO2
1	8102	W	PHYSICS
2A	8103	W	BIO2
2B	8103	W	BIO2
3A	8103	W	BIO2
3B	8103	W	BIO2
7A	8103	W	BIO2
7B	8103	W	BIO2
7C	8103	W	BIO2
9A	8103	W	BIO2
9B	8103	W	BIO2
10A	8103	W	BIO2
10B	8103	W	BIO2

7C	8103	W	PHYSICS
1	8104	W	BIO2
2A	8104	W	BIO2
2B	8104	W	BIO2
3A	8104	W	BIO2
3B	8104	W	BIO2
7A	8104	W	BIO2
7B	8104	W	BIO2
7C	8104	W	BIO2
9A	8104	W	BIO2
9B	8104	W	BIO2
10A	8104	W	BIO2
10B	8104	W	BIO2
7C	8104	W	PHYSICS
1	8105	W	BIO2
2A	8105	W	BIO2
2B	8105	W	BIO2
3A	8105	W	BIO2
3B	8105	W	BIO2
7A	8105	W	BIO2
7B	8105	W	BIO2
7C	8105	W	BIO2
9A	8105	W	BIO2
9B	8105	W	BIO2
10A	8105	W	BIO2
10B	8105	W	BIO2
7C	8105	W	PHYSICS
2A	8105	B	CHEM1
2B	8105	B	CHEM1
3A	8105	B	CHEM1
3B	8105	B	CHEM1
4A	8105	B	CHEM1
4B	8105	B	CHEM1
5A	8105	B	CHEM1
5B	8105	B	CHEM1
6A	8105	B	CHEM1
6B	8105	B	CHEM1
8	8105	B	CHEM1
9A	8105	B	CHEM1
9B	8105	B	CHEM1
10A	8105	B	CHEM1
10B	8105	B	CHEM1

VOC AG 2 AG MECHANICS (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1	8039	W	PHYSICS
2	8039	W	PHYSICS
4	8039	W	PHYSICS
5A	8039	W	PHYSICS
7A	8039	W	PHYSICS
7B	8039	W	PHYSICS
7C	8039	W	PHYSICS
8	8039	W	PHYSICS
10A	8039	W	PHYSICS
10B	8039	W	PHYSICS
1	8039	W	PHYS SCI
8	8039	W	PHYS SCI
10C	8039	W	PHYS SCI
1A	8039	W	GEOLOGY
1B	8039	W	GEOLOGY
1E	8039	W	INTPHYSCI
3C	8039	W	INTPHYSCI
4B	8039	W	INTPHYSCI
1	8040	W	PHYSICS
2	8040	W	PHYSICS
4	8040	W	PHYSICS
5A	8040	W	PHYSICS
7A	8040	W	PHYSICS
7B	8040	W	PHYSICS
7C	8040	W	PHYSICS
8	8040	W	PHYSICS
10A	8040	W	PHYSICS
10B	8040	W	PHYSICS
1	8040	W	PHYS SCI
8	8040	W	PHYS SCI
10C	8040	W	PHYS SCI
1A	8040	W	GEOLOGY
1B	8040	W	GEOLOGY
1E	8040	W	INTPHYSCI
3C	8040	W	INTPHYSCI
4B	8040	W	INTPHYSCI
1	8041	W	PHYSICS
2	8041	W	PHYSICS
4	8041	W	PHYSICS
5A	8041	W	PHYSICS
7A	8041	W	PHYSICS
7B	8041	W	PHYSICS
7C	8041	W	PHYSICS
8	8041	W	PHYSICS
10A	8041	W	PHYSICS
10B	8041	W	PHYSICS
1	8041	W	PHYS SCI
8	8041	W	PHYS SCI
10C	8041	W	PHYS SCI
1A	8041	W	GEOLOGY

1B	8041	W	GEOLOGY
1E	8041	W	INTPHYSCI
3C	8041	W	INTPHYSCI
4B	8041	W	INTPHYSCI
1	8042	W	PHYSICS
2	8042	W	PHYSICS
4	8042	W	PHYSICS
5A	8042	W	PHYSICS
7A	8042	W	PHYSICS
7B	8042	W	PHYSICS
7C	8042	W	PHYSICS
8	8042	W	PHYSICS
10A	8042	W	PHYSICS
10B	8042	W	PHYSICS
1	8042	W	PHYS SCI
8	8042	W	PHYS SCI
10C	8042	W	PHYS SCI
1A	8042	W	GEOLOGY
1B	8042	W	GEOLOGY
1E	8042	W	INTPHYSCI
3C	8042	W	INTPHYSCI
4B	8042	W	INTPHYSCI
1	8043	W	PHYSICS
2	8043	W	PHYSICS
4	8043	W	PHYSICS
5A	8043	W	PHYSICS
7A	8043	W	PHYSICS
7B	8043	W	PHYSICS
7C	8043	W	PHYSICS
8	8043	W	PHYSICS
10A	8043	W	PHYSICS
10B	8043	W	PHYSICS
1	8043	W	PHYS SCI
8	8043	W	PHYS SCI
10C	8043	W	PHYS SCI
1A	8043	W	GEOLOGY
1B	8043	W	GEOLOGY
1E	8043	W	INTPHYSCI
3C	8043	W	INTPHYSCI
4B	8043	W	INTPHYSCI
1	8044	W	PHYSICS
2	8044	W	PHYSICS
4	8044	W	PHYSICS
5A	8044	W	PHYSICS
7A	8044	W	PHYSICS
7B	8044	W	PHYSICS
7C	8044	W	PHYSICS
8	8044	W	PHYSICS
10A	8044	W	PHYSICS
10B	8044	W	PHYSICS
1	8044	W	PHYS SCI
8	8044	W	PHYS SCI
10C	8044	W	PHYS SCI
1A	8044	W	GEOLOGY

1B	8044	W	GEOLOGY
1E	8044	W	INTPHYSCI
3C	8044	W	INTPHYSCI
4B	8044	W	INTPHYSCI
1	8045	W	PHYSICS
2	8045	W	PHYSICS
4	8045	W	PHYSICS
5A	8045	W	PHYSICS
7A	8045	W	PHYSICS
7B	8045	W	PHYSICS
7C	8045	W	PHYSICS
8	8045	W	PHYSICS
10A	8045	W	PHYSICS
10B	8045	W	PHYSICS
1	8045	W	PHYS SCI
8	8045	W	PHYS SCI
10C	8045	W	PHYS SCI
1A	8045	W	GEOLOGY
1B	8045	W	GEOLOGY
1E	8045	W	INTPHYSCI
3C	8045	W	INTPHYSCI
4B	8045	W	INTPHYSCI
1	8046	W	PHYSICS
2	8046	W	PHYSICS
4	8046	W	PHYSICS
5A	8046	W	PHYSICS
7A	8046	W	PHYSICS
7B	8046	W	PHYSICS
7C	8046	W	PHYSICS
8	8046	W	PHYSICS
10A	8046	W	PHYSICS
10B	8046	W	PHYSICS
1	8046	W	PHYS SCI
8	8046	W	PHYS SCI
10C	8046	W	PHYS SCI
1A	8046	W	GEOLOGY
1B	8046	W	GEOLOGY
1E	8046	W	INTPHYSCI
3C	8046	W	INTPHYSCI
4B	8046	W	INTPHYSCI
1	8047	W	PHYSICS
2	8047	W	PHYSICS
4	8047	W	PHYSICS
5A	8047	W	PHYSICS
7A	8047	W	PHYSICS
7B	8047	W	PHYSICS
7C	8047	W	PHYSICS
8	8047	W	PHYSICS
10A	8047	W	PHYSICS
10B	8047	W	PHYSICS
1	8047	W	PHYS SCI
8	8047	W	PHYS SCI
10C	8047	W	PHYS SCI
1A	8047	W	GEOLOGY

1B	8047	W	GEOLOGY
1E	8047	W	INTPHYSCI
3C	8047	W	INTPHYSCI
4B	8047	W	INTPHYSCI
1	8048	W	PHYSICS
2	8048	W	PHYSICS
4	8048	W	PHYSICS
5A	8048	W	PHYSICS
7A	8048	W	PHYSICS
7B	8048	W	PHYSICS
7C	8048	W	PHYSICS
8	8048	W	PHYSICS
10A	8048	W	PHYSICS
10B	8048	W	PHYSICS
1	8048	W	PHYS SCI
8	8048	W	PHYS SCI
10C	8048	W	PHYS SCI
1A	8048	W	GEOLOGY
1B	8048	W	GEOLOGY
1E	8048	W	INTPHYSCI
3C	8048	W	INTPHYSCI
4B	8048	W	INTPHYSCI
1	8049	M	PHYS SCI
2A	8049	M	PHYS SCI
4A	8049	M	PHYS SCI
5A	8049	M	PHYS SCI
7A	8049	M	PHYS SCI
2A	8049	M	GEOLOGY
2B	8049	M	GEOLOGY
3A	8049	M	GEOLOGY
8	8049	M	GEOLOGY
10	8049	M	GEOLOGY
1A	8049	M	INTPHYSCI
1B	8049	M	INTPHYSCI
1	8050	M	PHYS SCI
2A	8050	M	PHYS SCI
4A	8050	M	PHYS SCI
5A	8050	M	PHYS SCI
7A	8050	M	PHYS SCI
2A	8050	M	GEOLOGY
2B	8050	M	GEOLOGY
3A	8050	M	GEOLOGY
8	8050	M	GEOLOGY
10	8050	M	GEOLOGY
1A	8050	M	INTPHYSCI
1B	8050	M	INTPHYSCI

VOC AG 2 SOEP (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
10C	1015A	B	BIO1
10B	1015A	B	BIO2
10B	1015A	B	PHYSICS
10C	1015A	B	PHYS SCI
10C	1015A	B	PHYS SCI
10B	1015A	B	PHYS&ANAT
10C	1015B	B	BIO1
10B	1015B	B	BIO2
10B	1015B	B	PHYSICS
10C	1015B	B	PHYS SCI
10C	1015B	B	PHYS SCI
10B	1015B	B	PHYS&ANAT
10C	1015C	W	BIO1
10B	1015C	W	BIO2
10B	1015C	W	PHYSICS
10C	1015C	W	PHYS SCI
10C	1015C	W	PHYS SCI
10B	1015C	W	PHYS&ANAT
10C	1015D	B	BIO1
10B	1015D	B	BIO2
10B	1015D	B	PHYSICS
10C	1015D	B	PHYS SCI
10C	1015D	B	PHYS SCI
10B	1015D	B	PHYS&ANAT
10C	1015E	M	BIO1
10B	1015E	M	BIO2
10B	1015E	M	PHYSICS
10C	1015E	M	PHYS SCI
10C	1015E	M	PHYS SCI
10B	1015E	M	PHYS&ANAT
10C	1015F	W	BIO1
10B	1015F	W	BIO2
10B	1015F	W	PHYSICS
10C	1015F	W	PHYS SCI
10C	1015F	W	PHYS SCI
10B	1015F	W	PHYS&ANAT

VOC AG 2 ENVIRONMENTAL PRO. (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	1023	M	ENVIR SCI
4A	1023	M	ENVIR SCI
4B	1023	M	ENVIR SCI
5A	1023	M	ENVIR SCI
5B	1023	M	ENVIR SCI
7A	1023	M	ENVIR SCI
7B	1023	M	ENVIR SCI
10A	1023	M	ENVIR SCI
10B	1023	M	ENVIR SCI
1	1023	M	CHEM1
4A	1023	M	CHEM1
4B	1023	M	CHEM1
2A	1023	M	PHYS SCI
4A	1023	M	PHYS SCI
7B	1023	M	PHYS SCI
10B	1023	M	PHYS SCI
10C	1023	M	PHYS SCI
3B	1023	M	INTRPHYSCI
3C	1023	M	INTRPHYSCI
4E	1023	M	INTRPHYSCI
2B	1023	M	GEOLOGY
7B	1023	M	GEOLOGY
10	1023	M	GEOLOGY
7C	1023	M	PHYSICS
2A	1024	M	ENVIR SCI
4A	1024	M	ENVIR SCI
4B	1024	M	ENVIR SCI
5A	1024	M	ENVIR SCI
5B	1024	M	ENVIR SCI
7A	1024	M	ENVIR SCI
7B	1024	M	ENVIR SCI
10A	1024	M	ENVIR SCI
10B	1024	M	ENVIR SCI
1	1024	M	CHEM1
4A	1024	M	CHEM1
4B	1024	M	CHEM1
2A	1024	M	PHYS SCI
4A	1024	M	PHYS SCI
7B	1024	M	PHYS SCI
10B	1024	M	PHYS SCI
10C	1024	M	PHYS SCI
3B	1024	M	INTRPHYSCI
3C	1024	M	INTRPHYSCI
4E	1024	M	INTRPHYSCI
2B	1024	M	GEOLOGY
7B	1024	M	GEOLOGY
10	1024	M	GEOLOGY
7C	1024	M	PHYSICS

VOC AG 2 ANIMAL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8071	B	FOM
1A	8071	B	CONS. MATH
5F	8071	B	PRE ALG
5F	8072	B	FOM
1A	8072	B	CONS. MATH
5F	8072	B	PRE ALG
5F	8073	B	FOM
1A	8073	B	CONS. MATH
5F	8073	B	PRE ALG
3C	8074	B	FOM
5F	8074	B	FOM
1A	8074	B	CONS. MATH
5F	8074	B	PRE ALG
5F	8076	B	FOM
1A	8076	B	CONS. MATH
5F	8076	B	PRE ALG
2A	8077	B	FOM
2B	8077	B	FOM
2C	8077	B	FOM
2D	8077	B	FOM
2E	8077	B	FOM
1C	8077	B	FOM
5E	8077	B	FOM
2A	8077	B	PRE ALG
2E	8077	B	PRE ALG
3A	8077	B	PRE ALG
4C	8077	B	INFORM GEO
5B	8077	B	ALG.1
3C	8078	B	FOM
1A	8078	B	FOM
1B	8078	B	FOM
5F	8078	B	FOM
1A	8078	B	CONS. MATH
5F	8078	B	PRE ALG
3C	8078	B	PRE ALG
4C	8078	B	PRE ALG
1A	8078	B	INFORM GEO
1B	8078	B	INFORM GEO
1C	8078	B	INFORM GEO
5F	8081	B	FOM
1A	8081	B	CONS. MATH
5F	8081	B	PRE ALG
5F	8082	B	FOM
1A	8082	B	CONS. MATH
5F	8082	B	PRE ALG
5F	8083	B	FOM
1A	8083	B	CONS. MATH
5F	8083	B	PRE ALG

VOC AG 2 PLANT SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8098	B	FOM
1A	8098	B	CONS. MATH
5F	8098	B	PRE ALG
4C	8099	B	FOM
1C	8099	B	FOM
5E	8099	B	FOM
3B	8099	B	PRE ALG
3C	8099	B	PRE ALG
5B	8099	B	ALG.1
1C	8101	B	FOM
3A	8101	B	FOM
3C	8101	B	FOM
3B	8101	B	PRE ALG
2A	8101	B	PRE ALG
4C	8101	B	INFORM GEO
5B	8101	B	ALG.1
1C	8105	B	FOM
5B	8105	B	FOM
3A	8105	B	FOM
3C	8105	B	FOM
3E	8105	B	PRE ALG
3B	8105	B	PRE ALG
2A	8105	B	PRE ALG
2E	8105	B	INFORM GEO
4C	8105	B	ALG.1
5B	8105	B	ALG.1
2A	8105		ALG.2
1A			

VOC AG 2 AG. MECHANICS (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8039	B	FOM
1A	8039	B	CONS. MATH
5F	8039	B	PRE ALG
5F	8040	B	FOM
1A	8040	B	CONS. MATH
5F	8040	B	PRE ALG
5F	8041	B	FOM
1A	8041	B	CONS. MATH
5F	8041	B	PRE ALG
5F	8042	B	FOM
1A	8042	B	CONS. MATH
5F	8042	B	PRE ALG
1A	8043	B	FOM
5E	8043	B	FOM
5B	8043	B	ALG.1
11A	8043	B	GEOMETRY
4C	8043	B	INFORM GEO
3B	8043	B	PRE ALG
1A	8044	B	FOM
5E	8044	B	FOM
5B	8044	B	ALG.1
11A	8044	B	GEOMETRY
4C	8044	B	INFORM GEO
4C	8044	B	PRE ALG
1A	8045	B	FOM
1B	8045	B	FOM
5C	8045	B	FOM
1A	8045	B	INFORM GEO
4C	8045	B	PRE ALG
1A	8046	B	FOM
1B	8046	B	FOM
5C	8046	B	FOM
3B	8046	B	GEOMETRY
1A	8046	B	INFORM GEO
4C	8046	B	PRE ALG
1A	8047	B	FOM
1B	8047	B	FOM
5C	8047	B	FOM
1A	8047	B	INFORM GEO
4C	8047	B	PRE ALG
1A	8048	B	FOM
1B	8048	B	FOM
5C	8048	B	FOM
3B	8048	B	GEOMETRY
1A	8048	B	INFORM GEO
4C	8048	B	PRE ALG
5C	8049	B	FOM
3A	8049	B	FOM
3C	8049	B	FOM

3D	8049	B	FOM
3E	8049	B	FOM
2A	8049	B	FOM
2B	8049	B	FOM
1B	8049	B	ALG.1
4C	8049	B	INFORM GEO
7A	8049	B	INFORM GEO
10A	8049	B	INFORM GEO
2A	8049	B	PRE ALG
3B	8049	B	PRE ALG
4D	8049	B	PRE ALG
5F	8050	B	FOM
5F	8050	B	PRE ALG

VOC AG 2 SOEP (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3A	1015A	B	FOM
3C	1015A	B	FOM
3E	1015A	B	FOM
2A	1015A	B	PRE ALG
3A	1015B	B	FOM
3C	1015B	B	FOM
3E	1015B	B	FOM
2A	1015B	B	PRE ALG
3A	1015C	B	FOM
3C	1015C	B	FOM
3E	1015C	B	FOM
2A	1015C	B	PRE ALG
5F	1015D	B	FOM
5F	1015D	B	PRE ALG
1A	1015D	B	CONS. MATH
5B	1015E	B	FOM
5E	1015E	B	PRE ALG
2A	1015E	B	ALG.1
1A	1015E	B	ALG.2

VOC AG 2 ENVIRON. PROTECTION (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	1023	B	FOM
1A	1023	B	CONS. MATH
5F	1023	B	PRE ALG
5B	1024	B	FOM
5E	1024	B	PRE ALG
2A	1024	B	ALG.1
1A	1024	B	ALG.2

VOC AG 3 ANIMAL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3	8132	M	BIO1
4A	8132	W	BIO1
6A	8132	W	BIO1
8	8132	W	BIO1
9A	8132	W	BIO1
10A	8132	W	BIO1
10B	8132	W	BIO1
10C	8132	W	BIO1
8	8132	M	BIO2
3	8132	B	PHYS&ANAT
8	8132	M	PHYS&ANAT
10A	8132	W	PHYS&ANAT
10B	8132	W	PHYS&ANAT
2C	8133	W	BIO1
3	8133	W	BIO1
4A	8133	W	BIO1
6A	8133	W	BIO1
8	8133	W	BIO1
9A	8133	W	BIO1
2A	8133	W	BIO2
2B	8133	W	BIO2
6A	8133	W	BIO2
7B	8133	M	BIO2
8	8133	W	BIO2
10A	8133	W	BIO1
10B	8133	W	BIO1
10C	8133	W	BIO1
2A	8133	M	PHYS&ANAT
2B	8133	M	PHYS&ANAT
4A	8133	M	PHYS&ANAT
8	8133	W	PHYS&ANAT
9A	8133	M	PHYS&ANAT
1A	8134	B	BIO1
2A	8134	M	BIO1
4A	8134	B	BIO1
6A	8134	W	BIO1
8	8134	W	BIO1
10A	8134	W	BIO1
10B	8134	W	BIO1
10C	8134	W	BIO1
6A	8134	W	BIO2
7A	8134	W	BIO2
8	8134	W	BIO2
6A	8134	W	PHYS&ANAT
6B	8134	W	PHYS&ANAT
7	8134	W	PHYS&ANAT
8	8134	W	PHYS&ANAT
9A	8134	W	PHYS&ANAT
2A	8135	M	BIO1

2B	8135	M	BIO1
4A	8135	W	BIO1
6A	8135	W	BIO1
7C	8135	W	BIO1
8	8135	W	BIO1
9A	8135	W	BIO1
10A	8135	W	BIO1
10B	8135	W	BIO1
10C	8135	W	BIO1
2A	8135	M	BIO2
2B	8135	M	BIO2
6A	8135	W	BIO2
7A	8135	W	BIO2
7B	8135	W	BIO2
8	8135	W	BIO2
2A	8135	B	PHYS&ANAT
2B	8135	B	PHYS&ANAT
6A	8135	M	PHYS&ANAT
6B	8135	M	PHYS&ANAT
8	8135	W	PHYS&ANAT
9A	8135	M	PHYS&ANAT
1A	8136	B	BIO1
2A	8136	B	BIO1
2B	8136	B	BIO1
4A	8136	W	BIO1
8	8136	W	BIO1
10A	8136	W	BIO1
10B	8136	W	BIO1
10C	8136	W	BIO1
2A	8136	W	BIO2
2B	8136	W	BIO2
7B	8136	W	BIO2
8	8136	W	BIO2
2A	8136	W	PHYS&ANAT
2B	8136	W	PHYS&ANAT
8	8136	W	PHYS&ANAT
4A	8137	W	BIO1
8	8137	W	BIO1
10A	8137	W	BIO1
10B	8137	W	BIO1
10C	8137	W	BIO1
2A	8137	W	BIO2
2B	8137	W	BIO2
3B	8137	W	BIO2
7B	8137	M	BIO2
8	8137	W	BIO2
2A	8137	W	PHYS&ANAT
2B	8137	W	PHYS&ANAT
4A	8137	W	PHYS&ANAT
8	8137	W	PHYS&ANAT
4A	8138	W	BIO1
6A	8138	W	BIO1
8	8138	W	BIO1
9A	8138	W	BIO1

10A	8138	W	BIO1
10B	8138	W	BIO1
10C	8138	W	BIO1
2A	8138	W	BIO2
2B	8138	W	BIO2
3B	8138	W	BIO2
6A	8138	M	BIO2
7A	8138	W	BIO2
8	8138	M	BIO2
10A	8138	W	BIO2
2A	8138	W	PHYS&ANAT
3	8138	W	PHYS&ANAT
4A	8138	W	PHYS&ANAT
6A	8138	W	PHYS&ANAT
8	8138	W	PHYS&ANAT
9A	8138	W	PHYS&ANAT
8	8139	M	BIO1
10A	8139	W	BIO1
10B	8139	W	BIO1
10C	8139	W	BIO1
2A	8140	B	BIO1
2C	8140	M	BIO1
3	8140	W	BIO1
4A	8140	W	BIO1
4B	8140	W	BIO1
5A	8140	W	BIO1
5B	8140	W	BIO1
6A	8140	M	BIO1
6B	8140	M	BIO1
8	8140	W	BIO1
9A	8140	B	BIO1
9B	8140	M	BIO1
10A	8140	W	BIO1
10B	8140	W	BIO1
10C	8140	W	BIO1
5A	8140	M	BIO2
5B	8140	M	BIO2
6A	8140	W	BIO2
7A	8140	W	BIO2
7C	8140	W	BIO2
8	8140	W	BIO2
9A	8140	W	BIO2
5A	8140	W	PHYS&ANAT
5B	8140	W	PHYS&ANAT
6A	8140	W	PHYS&ANAT
7	8140	B	PHYS&ANAT
8	8140	W	PHYS&ANAT
10A	8140	W	PHYS&ANAT
10B	8140	W	PHYS&ANAT
7D	8141	M	BIO1
8	8141	B	BIO1
10A	8141	W	BIO1
10B	8141	W	BIO1
10C	8141	W	BIO1

2A	8141	W	ENVIR SCI
2B	8141	W	ENVIR SCI
3A	8141	M	ENVIR SCI
5A	8141	M	ENVIR SCI
6	8141	W	ENVIR SCI
7A	8141	W	ENVIR SCI
7B	8141	W	ENVIR SCI
8	8141	W	ENVIR SCI
9A	8141	M	ENVIR SCI
10A	8142	W	BIO1
10B	8142	W	BIO1
10C	8142	W	BIO1
2A	8142	W	ENVIR SCI
2B	8142	W	ENVIR SCI
3A	8142	M	ENVIR SCI
6	8142	W	ENVIR SCI
7A	8142	W	ENVIR SCI
7B	8142	W	ENVIR SCI
8	8142	W	ENVIR SCI
9A	8142	M	ENVIR SCI

VOC AG 3 SOIL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8160	W	GEOLOGY
3A	8160	W	GEOLOGY
8	8160	B	GEOLOGY
2A	8161	W	GEOLOGY
3A	8161	W	GEOLOGY
8	8161	B	GEOLOGY
2A	8162	W	GEOLOGY
3A	8162	W	GEOLOGY
8	8162	B	GEOLOGY
5A	8162	W	ENVIR SCI
5B	8162	W	ENVIR SCI
6	8162	W	ENVIR SCI
7A	8162	W	ENVIR SCI
7B	8162	W	ENVIR SCI
2A	8163	W	ENVIR SCI
2B	8163	W	ENVIR SCI
7B	8163	W	ENVIR SCI
8	8163	W	ENVIR SCI
4A	8163	M	ENVIR SCI
4B	8163	M	ENVIR SCI
5A	8163	M	ENVIR SCI
5B	8163	M	ENVIR SCI
2A	8164	B	BIO1
4A	8164	B	BIO1
7C	8164	M	BIO1
7D	8164	W	BIO1
8	8164	W	BIO1
7B	8164	M	CHEM1
4A	8164	B	BIO2
2A	8164	W	ENVIR SCI
2B	8164	W	ENVIR SCI
5A	8164	W	ENVIR SCI
5B	8164	W	ENVIR SCI
7B	8164	W	ENVIR SCI
8	8164	W	ENVIR SCI
3A	8164	M	ENVIR SCI
2A	8165	M	BIO1
8	8165	M	BIO1
4A	8165	W	BIO1
5A	8165	W	BIO1
5B	8165	W	BIO1
6A	8165	W	BIO1
7D	8165	W	BIO1
7B	8165	W	CHEM1
2B	8165	W	ENVIR SCI
5A	8165	W	ENVIR SCI
5B	8165	W	ENVIR SCI
7B	8165	W	ENVIR SCI
8	8165	W	ENVIR SCI

VOC AG 3 PLANT SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8126	B	BIO1
2B	8126	M	BIO1
2C	8126	W	BIO1
5A	8126	B	BIO1
6A	8126	W	BIO1
7D	8126	M	BIO1
8	8126	W	BIO1
9A	8126	W	BIO1
6A	8126	W	BIO2
7A	8126	W	BIO2
9A	8126	W	BIO2
2A	8126	M	PHYS&ANAT
2B	8126	M	PHYS&ANAT
4A	8126	W	PHYS&ANAT
6A	8126	W	PHYS&ANAT
7	8126	W	PHYS&ANAT
9A	8126	W	PHYS&ANAT
2A	8127	B	BIO1
2B	8127	B	BIO1
2C	8127	M	BIO1
4A	8127	W	BIO1
6A	8127	W	BIO1
7D	8127	M	BIO1
8	8127	W	BIO1
9A	8127	W	BIO1
6A	8127	W	BIO2
7A	8127	M	BIO2
9A	8127	M	BIO2
5A	8128	M	PHYS SCI
7A	8128	W	PHYS SCI
8	8128	W	PHYS SCI
2B	8130	M	BIO1
2C	8130	W	BIO1
3	8130	W	BIO1
8	8130	W	BIO1
3A	8130	M	BIO2
8	8130	W	BIO2
2A	8130	W	PHYS&ANAT
2B	8131	W	BIO1
3	8131	W	BIO1
6A	8131	M	BIO1
7C	8131	M	BIO1
8	8131	W	BIO1
3A	8131	W	BIO2
5A	8131	M	BIO2
5B	8131	M	BIO2
6A	8131	W	BIO2
7A	8131	W	BIO2
7C	8131	W	BIO2
8	8131	M	BIO2

VOC AG 3 AG. MECHANICS (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2	8111	B	PHYSICS
3A	8111	M	PHYSICS
8	8111	W	PHYSICS
2A	8111	M	PHYS SCI
2B	8111	M	PHYS SCI
2C	8111	M	PHYS SCI
4B	8111	B	PHYS SCI
7A	8111	W	PHYS SCI
8	8111	W	PHYS SCI
1	8112	M	PHYS SCI
7A	8112	W	PHYS SCI
8	8112	W	PHYS SCI
4	8119	M	PHYSICS
5A	8119	W	PHYSICS
7B	8119	W	PHYSICS
7C	8119	W	PHYSICS
8	8119	M	PHYSICS
2A	8119	W	PHYS SCI
2C	8119	W	PHYS SCI
5A	8119	W	PHYS SCI
7C	8119	W	PHYS SCI
8	8119	W	PHYS SCI
1	8120	M	PHYSICS
7B	8120	M	PHYSICS
8	8120	M	PHYSICS
9A	8120	M	PHYSICS
1	8120	M	PHYS SCI
2A	8120	M	PHYS SCI
2C	8120	W	PHYS SCI
4A	8120	M	PHYS SCI
2	8121	W	PHYSICS
7B	8121	W	PHYSICS
7C	8121	W	PHYSICS
8	8121	W	PHYSICS
2C	8121	M	PHYS SCI
7A	8121	W	PHYS SCI
8	8121	W	PHYS SCI
2	8122	M	PHYSICS
8	8122	W	PHYSICS
1	8122	M	PHYSICS
1	8122	M	PHYS SCI
2B	8122	M	PHYS SCI
4B	8122	B	PHYS SCI
7A	8122	W	PHYS SCI
8	8122	W	PHYS SCI
1	8123	M	PHYSICS
8	8123	M	PHYSICS
1	8123	M	PHYS SCI
2B	8123	M	PHYS SCI

7A	8123	W	PHYS SCI
8	8123	W	PHYS SCI
1	8124	B	PHYSICS
5A	8124	B	PHYSICS
6A	8124	B	PHYSICS
6B	8124	B	PHYSICS
1	8124	B	PHYS SCI
2A	8124	W	PHYS SCI
2B	8124	M	PHYS SCI
4A	8124	M	PHYS SCI
5A	8124	M	PHYS SCI
7A	8124	W	PHYS SCI
7B	8124	W	PHYS SCI
8	8124	M	PHYS SCI
1B	8124	B	CHEM1
2A	8124	M	CHEM1
2B	8124	M	CHEM1
1A	8125	M	GEOLOGY

VOC AG 3 ANIMAL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1C	8132	B	FOM
3A	8132	B	FOM
3C	8132	B	FOM
3E	8132	B	FOM
5F	8132	B	FOM
5G	8132	B	FOM
6	8132	B	FOM
1A	8132	B	CONS. MATH
1D	8132	B	CONS. MATH
1E	8132	B	CONS. MATH
3A	8132	B	CONS. MATH
3B	8132	B	CONS. MATH
3C	8132	B	CONS. MATH
3D	8132	B	CONS. MATH
2A	8132	B	PRE ALG
3B	8132	B	PRE ALG
5A	8132	B	PRE ALG
5B	8132	B	PRE ALG
5C	8132	B	PRE ALG
5D	8132	B	PRE ALG
5E	8132	B	PRE ALG
4C	8132	B	INFORM GEO
5B	8132	B	ALG.1
4C	8133	B	FOM
5E	8133	B	FOM
5F	8133	B	FOM
1A	8133	B	CONS. MATH
3C	8133	B	PRE ALG
4C	8134	B	FOM
5E	8134	B	FOM
5F	8134	B	FOM
1A	8134	B	CONS. MATH
3C	8134	B	PRE ALG
5F	8134	B	PRE ALG
5F	8135	B	FOM
1A	8135	B	CONS. MATH
5F	8135	B	PRE ALG
5F	8137	B	FOM
1A	8137	B	CONS. MATH
5F	8137	B	PRE ALG
1C	8138	B	FOM
4C	8138	B	FOM
5E	8138	B	FOM
5F	8138	B	FOM
1A	8138	B	CONS. MATH
3B	8138	B	PRE ALG
3C	8138	B	PRE ALG
5F	8138	B	PRE ALG
4C	8138	B	INFORM GEO

5C	8138	B	ALG.1
3A	8140	B	FOM
3E	8140	B	FOM
4C	8140	B	FOM
5E	8140	B	FOM
2A	8140	B	PRE ALG
3C	8140	B	PRE ALG
4D	8140	B	PRE ALG
2A	8142	B	FOM
2B	8142	B	FOM
7A	8142	B	INFORM GEO
7D	8142	B	INFORM GEO
2C	8142	B	GEOMETRY
10A	8142	B	GEOMETRY
15A	8142	B	GEOMETRY
15C	8142	B	GEOMETRY

VOC AG 3 SOIL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8160	B	FOM
1A	8160	B	CONS. MATH
5F	8160	B	PRE ALG
5F	8161	B	FOM
1A	8161	B	CONS. MATH
5F	8161	B	PRE ALG
5F	8162	B	FOM
1A	8162	B	CONS. MATH
5F	8162	B	PRE ALG
5F	8163	B	FOM
5E	8163	B	FOM
3A	8163	B	FOM
3C	8163	B	FOM
3E	8163	B	FOM
4C	8163	B	FOM
1A	8163	B	CONS. MATH
5F	8163	B	PRE ALG
2A	8163	B	PRE ALG
3C	8163	B	PRE ALG
5F	8164	B	FOM
1A	8164	B	CONS. MATH
5F	8164	B	PRE ALG
5F	8165	B	FOM
6C	8165	B	FOM
1A	8165	B	CONS. MATH
1D	8165	B	CONS. MATH
5F	8165	B	PRE ALG
5D	8165	B	PRE ALG

VOC AG 3 PLANT SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3A	8126	B	FOM
3C	8126	B	FOM
3E	8127	B	FOM
5F	8127	B	FOM
5F	8127	B	FOM
5G	8127	B	FOM
4C	8127	B	FOM
6A	8127	B	FOM
6B	8127	B	FOM
6C	8127	B	FOM
6D	8127	B	FOM
6E	8127	B	FOM
6F	8127	B	FOM
5F	8128	B	FOM

VOC AG 3 AG. MECHANICS (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5B	8111	B	FOM
2E	8111	B	PRE ALG
2B	8111	B	ALG.1
5F	8112	B	FOM
1A	8112	B	CONS. MATH
5F	8112	B	PRE ALG
5B	8119	B	FOM
5F	8119	B	FOM
1A	8119	B	CONS. MATH
5F	8119	B	PRE ALG
5B	8119	B	PRE ALG
2B	8119	B	ALG.1
5F	8120	B	FOM
1A	8120	B	CONS. MATH
5F	8120	B	PRE ALG
1A	8124	B	FOM
1B	8124	B	FOM
5F	8124	B	FOM
1A	8124	B	CONS. MATH
5F	8124	B	PRE ALG
4C	8124	B	PRE ALG
1A	8124	B	INFORM GEO
1B	8124	B	INFORM GEO
1C	8124	B	INFORM GEO
2A	8125	B	FOM
2B	8125	B	FOM
5D	8125	B	FOM
2D	8125	B	PRE ALG
4B	8125	B	PRE ALG
4D	8125	B	PRE ALG
4F	8125	B	PRE ALG
6B	8125	B	PRE ALG
2A	8125	B	INFORM GEO
2B	8125	B	INFORM GEO
2C	8125	B	INFORM GEO
6A	8125	B	INFORM GEO
8A	8125	B	INFORM GEO
3A	8125	B	ALG.1
3B	8125	B	ALG.1
3C	8125	B	ALG.1
6A	8125	B	ALG.1
4D	8125	B	GEOMETRY
12A	8125	B	GEOMETRY
12B	8125	B	GEOMETRY
12C	8125	B	GEOMETRY
13A	8125	B	GEOMETRY
13B	8125	B	GEOMETRY
13C	8125	B	GEOMETRY
13D	8125	B	GEOMETRY

VOC AG 3 AG. MANAGEMENT (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8144	B	FOM
1A	8144	B	CONS. MATH
5F	8144	B	PRE ALG
5F	8145	B	FOM
1A	8145	B	CONS. MATH
5F	8145	B	PRE ALG
5F	8146	B	FOM
1A	8146	B	CONS. MATH
2C	8146	B	CONS. MATH
5F	8146	B	PRE ALG
3G	8146	B	MATH C.ECO
4A	8147	B	CONS. MATH
4B	8147	B	CONS. MATH
5B	8147	B	CONS. MATH
2A	8147	B	MATH C.ECO
2E	8147	B	MATH C.ECO
5A	8148	B	CONS. MATH
5B	8148	B	CONS. MATH
2A	8148	B	MATH C.ECO
2B	8148	B	MATH C.ECO
2C	8148	B	MATH C.ECO
2D	8148	B	MATH C.ECO
2E	8148	B	MATH C.ECO
2F	8148	B	MATH C.ECO
4B	8149	B	CONS. MATH
2E	8149	B	MATH C.ECO
2F	8149	B	MATH C.ECO
4A	8150	B	CONS. MATH
4B	8150	B	CONS. MATH
5A	8150	B	CONS. MATH
5B	8150	B	CONS. MATH
2A	8150	B	MATH C.ECO
2B	8150	B	MATH C.ECO
2C	8150	B	MATH C.ECO
2D	8150	B	MATH C.ECO
2E	8150	B	MATH C.ECO
2F	8150	B	MATH C.ECO
3A	8151	B	FOM
3C	8151	B	FOM
7A	8151	B	CONS. MATH
7B	8151	B	CONS. MATH
2A	8151	B	PRE ALG
4A	8151	B	MATH C.ECO
4B	8151	B	MATH C.ECO
7A	8152	B	CONS. MATH
7B	8152	B	CONS. MATH
2F	8152	B	ALG.1
1A	8152	B	ALG.2
4A	8152	B	MATH C.ECO

4B	8152	B	MATH C.ECO
3A	8153	B	FOM
3C	8153	B	FOM
3E	8153	B	FOM
6C	8153	B	CONS. MATH
2A	8153	B	PRE ALG
1D	8153	B	MATH C.ECO
6A	8154	B	CONS. MATH
6B	8154	B	CONS. MATH
6C	8154	B	CONS. MATH
1C	8154	B	CONS. MATH
1D	8154	B	MATH C.ECO
2A(v)	8155	B	CONS. MATH
3C	8155	B	MATH C.ECO
2A(v)	8156	B	CONS. MATH
3C	8156	B	MATH C.ECO
5F	8157	B	FOM
1A	8157	B	CONS. MATH
5F	8157	B	PRE ALG
4A	8157	B	MATH C.ECO

VOC AG 4 ANIMAL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3	8192	M	BIO1
8	8192	M	BIO1
3	8192	M	BIO2
8	8192	M	BIO2
9A	8193	M	BIO2
8	8194	W	BIO2
9A	8194	M	BIO2

VOC AG 4 SOIL SCIENCE (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
1	8185	M	CHEM1
3A	8185	W	CHEM1
3B	8185	W	CHEM1
6A	8185	M	CHEM1
7B	8185	W	CHEM1
8	8185	B	CHEM1
1A	8185	M	GEOLOGY
1B	8185	M	GEOLOGY
2A	8185	W	GEOLOGY
2B	8185	W	GEOLOGY
3A	8185	W	GEOLOGY
4	8185	W	GEOLOGY
8	8185	M	GEOLOGY
4B	8186	M	CHEM1
6A	8186	W	CHEM1
7B	8186	W	CHEM1
8	8186	W	CHEM1
3A	8186	W	GEOLOGY
6A	8186	M	GEOLOGY
8	8186	M	GEOLOGY
6A	8187	B	BIO1
3A	8188	M	CHEM1
5A	8188	M	CHEM1
6A	8188	M	CHEM1
7B	8188	M	CHEM1
8	8188	W	CHEM1
2A	8188	M	ENVIR SCI
5A	8188	W	ENVIR SCI
7A	8188	M	ENVIR SCI
7B	8188	M	ENVIR SCI
3A	8189	M	CHEM1
4A	8189	M	CHEM1
5A	8189	W	CHEM1
6A	8189	W	CHEM1
7B	8189	W	CHEM1
8	8189	W	CHEM1
4A	8189	M	BIO1
6A	8189	W	BIO1
7D	8189	W	BIO1
8	8189	W	BIO1
3A	8190	M	CHEM1
4A	8190	M	CHEM1
5A	8190	W	CHEM1
6A	8190	W	CHEM1
7B	3190	W	CHEM1
8	8190	W	CHEM1
4A	8190	M	BIO1
6A	8190	W	BIO1
7D	8190	W	BIO1
8	8190	W	BIO1

VOC AG 4 AG. MECHANICS (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5A	8169	M	PHYSICS
5A	8169	M	PHYS SCI
7A	8169	B	PHYS SCI
7B	8169	B	PHYS SCI
7C	8169	B	PHYS SCI
8	8169	M	PHYS SCI
5A	8170	B	PHYSICS
5A	8170	M	PHYS SCI
7A	8171	M	PHYS SCI
7B	8171	M	PHYS SCI
8	8171	W	PHYS SCI
4A	8172	B	PHYS SCI
7A	8172	M	PHYS SCI
7B	8172	M	PHYS SCI
7C	8172	M	PHYS SCI
8	8172	M	PHYS SCI
2C	8173	M	PHYS SCI
4A	8173	B	PHYS SCI
7A	8173	M	PHYS SCI
7C	8173	M	PHYS SCI
8	8173	W	PHYS SCI
2B	8174	B	PHYS SCI
4A	8174	B	PHYS SCI
7A	8174	M	PHYS SCI
7B	8174	M	PHYS SCI
7C	8174	M	PHYS SCI
8	8174	M	PHYS SCI
2B	8175	B	PHYS SCI
4A	8175	B	PHYS SCI
4B	8175	B	PHYS SCI
7A	8175	M	PHYS SCI
7C	8175	M	PHYS SCI
8	8175	M	PHYS SCI
2A	8176	B	PHYS SCI
2B	8176	B	PHYS SCI
4A	8176	B	PHYS SCI
4B	8176	B	PHYS SCI
7A	8176	M	PHYS SCI
7C	8176	M	PHYS SCI
8	8176	M	PHYS SCI
2A	8177	B	PHYS SCI
2B	8177	B	PHYS SCI
4A	8177	B	PHYS SCI
7A	8177	M	PHYS SCI
7B	8177	M	PHYS SCI
7C	8177	M	PHYS SCI
8	8177	M	PHYS SCI
2A	8178	B	PHYS SCI
2B	8178	B	PHYS SCI

4A	8178	B	PHYS SCI
7A	8178	M	PHYS SCI
7C	8178	M	PHYS SCI
8	8178	M	PHYS SCI
2A	8179	B	PHYS SCI
5A	8179	B	PHYS SCI
7A	8181	B	PHYS SCI
8	8181	M	PHYS SCI
2A	8182	B	PHYS SCI
4A	8182	B	PHYS SCI
5A	8182	M	PHYS SCI
7B	8182	B	PHYS SCI
2A	8182	B	CHEM1
3A	8182	B	CHEM1
4A	8182	M	CHEM1
7A	8182	B	CHEM1
8	8182	B	CHEM1
5A	8184	B	PHYS SCI

VOC AG 4 AGRI MANAGEMENT (SCIENCE)

ESSENTIAL ELEMENTS	MATERIAL #	COVERAGE	COURSE
2A	8197	B	ENVIR SCI
2B	8197	M	ENVIR SCI
7A	8197	B	ENVIR SCI
9A	8197	M	ENVIR SCI
2A	8198	M	ENVIR SCI
2B	8198	M	ENVIR SCI
4A	8198	M	ENVIR SCI
7A	8198	W	ENVIR SCI
7B	8198	W	ENVIR SCI
2A	8200	B	BIO2
2B	8200	B	BIO2
3	8200	B	BIO2
7D	8200	B	BIO2

VOC AG 4 ANIMAL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2F	8192	B	ALG.1
1A	8192	B	ALG.2
2F	8194	B	ALG.1
1A	8194	B	ALG.2

VOC AG 4 SOIL SCIENCE (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
5F	8186	B	FOM
5G	8186	B	FOM
6 all	8186	B	FOM
1A	8186	B	CONS. MATH
5 all	8186	B	PRE ALG
2F	8187	B	ALG.1
1A	8187	B	ALG.2
5F	8189	B	FOM
1A	8189	B	CONS. MATH
5F	8189	B	PRE ALG
1C	8189	B	PRE ALG

VOC AG 4 AG. MECHANICS (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
2A	8169	M	FOM
3A	8169	M	FOM
3C	8169	M	FOM
3E	8169	M	FOM
2A	8169	M	PRE ALG
4D	8169	M	PRE ALG
10E	8169	M	INFORM GEO
7A	8169	M	INFORM GEO
2C	8169	M	GEOMETRY
10A	8169	M	GEOMETRY
2A	8170	M	FOM
3A	8170	M	FOM
3C	8170	M	FOM
3E	8170	M	FOM
2A	8170	M	PRE ALG
4D	8170	M	PRE ALG
10E	8170	M	INFORM GEO
7A	8170	M	INFORM GEO
2C	8170	M	GEOMETRY
10A	8170	M	GEOMETRY
5F	8171	M	FOM
1A	8171	M	CONS. MATH
5F	8171	M	PRE ALG
5F	8172	M	FOM
1A	8172	M	CONS. MATH
5F	8172	M	PRE ALG
5F	8177	M	FOM
1A	8177	M	CONS. MATH
5F	8177	M	PRE ALG
2F	8181	M	ALG.1
1A	8181	B	ALG.2
5F	8182	M	FOM
1A	8182	M	CONS. MATH
5F	8182	M	PRE ALG
3G	8182	M	ALG.1
5A	8183	M	FOM
2E	8183	M	PRE ALG
9C	8183	M	INFORM GEO
3A	8184	M	FOM
3C	8184	M	FOM
3E	8184	M	FOM
2A	8184	M	PRE ALG

VOC AG 4 AG. MANAGEMENT (MATH)

ESSENTIAL ELEMENTS	MATERIAL#	COVERAGE	COURSE
3A	8196	B	FOM
3C	8196	B	FOM
3E	8196	B	FOM
5F	8196	B	FOM
1A	8196	B	CONS. MATH
2A	8196	B	PRE ALG
5F	8196	B	PRE ALG
3A	8197	B	FOM
3C	8197	B	FOM
3E	8197	B	FOM
5F	8197	B	FOM
1A	8197	B	CONS. MATH
2A	8197	B	PRE ALG
5F	8197	B	PRE ALG
2F	8198	B	ALG.1
1A	8198	B	ALG.2
5F	8199	B	FOM
1A	8199	B	CONS. MATH
5F	8199	B	PRE ALG
3A	8201	B	FOM
3C	8201	B	FOM
3E	8201	B	FOM
1A	8201	B	CONS. MATH
2A	8201	B	PRE ALG
2F	8201	B	ALG.1
1A	8201	B	ALG.2
3A	8203	B	FOM
3C	8203	B	FOM
3E	8203	B	FOM
5F	8203	B	FOM
1A	8203	B	CONS. MATH
2A	8203	B	PRE ALG
5F	8203	B	PRE ALG
3A	8204	B	FOM
3C	8204	B	FOM
3E	8204	B	FOM
5F	8204	B	FOM
1A	8204	B	CONS. MATH
2A	8204	B	PRE ALG
5F	8204	B	PRE ALG
3A	8205	B	FOM
3C	8205	B	FOM
3E	8205	B	FOM
5F	8205	B	FOM
1A	8205	B	CONS. MATH
2A	8205	B	PRE ALG
5F	8205	B	PRE ALG

APPENDIX 2

SCIENCE AND MATHEMATICS COURSE ABBREVIATIONS

SCIENCE COURSE	ABBREVIATION
BIOLOGY I.	BIO1
CHEMISTRY I.	CHEM1
PHYSICS I.	PHYSICS1 OR PHYSICS
PHYSICAL SCIENCE	PHYS SCI
BIOLOGY II	BIO2
PHYSIOLOGY & ANATOMY	PHYS&ANAT
GEOLOGY.	GEOLOGY
ENVIRONMENTAL SCIENCE.	ENVIR SCI
INTRODUCTORY BIOLOGY	INTRO BIO
INTRODUCTORY PHYSICAL SCIENCE.	INTRPHYSCI

MATHEMATICS COURSE	ABBREVIATION
FUNDAMENTALS OF MATHEMATICS.	FOM
CONSUMER MATHEMATICS	CONS. MATH
PRE-ALGEBRA.	PRE ALG
INFORMAL GEOMETRY.	INFORM GEO
ALGEBRA I.	ALG.1
ALGEBRA II	ALG.2
GEOMETRY	GEOMETRY
MATHEMATICS OF CONSUMER ECONOMICS.	MATH C.ECO

APPENDIX 3

VOCATIONAL AGRICULTURE TOPICS NUMERIC CODE

VOCATIONAL AGRICULTURE - INSTRUCTOR MATERIALS

TOPIC NUMBER	
1015	V.A. I Supervised Experience Programs
1023	V.A. II Plant Science
1024	V.A. II Agricultural Mechanics

VOCATIONAL AGRICULTURE -STUDENT MATERIALS

V.A. I AGRICULTURAL MECHANICS (16 topics)

8022	Shop Safety
8023	Selecting & Using Nail Hammers, Hatchets, & Wrecking Bars
8024	Hand Planes
8025	Hand Saws
8026	Wood Chisels
8027	Brace and Bits, Hand Operated Drills, and Screwdrivers
8028	Identification & Use of Nails, Screws, Bolts, & Other Fasteners
8029	Mechanical Drawings and Drawing Equipment
8030	Measuring and Marking Devices
8031	Identifying Common Kinds of Metal and Cutting Cold Metal
8032	Bending and Shaping Metal
8033	Drilling Holes - Tapping and Threading
8034	Bolting, Riveting, and Removing Broken Bolts
8035	Brush and Spray Gun Painting
8036	Conditioning Plane Irons, Wood Chisels, Bits (Wood and Metal), Screwdrivers and Cold Chisels
8113	Lumber Identification and Computation of Bill of Materials

V.A. I ANIMAL SCIENCE (17 topics)

8005	Selecting Beef Cattle
8006	Breeds of Beef Cattle
8007	Selecting Sheep
8008	Selecting Dairy Cattle
8009	Selecting Swine
8011	Selecting Horses
8012	Breeds of Swine
8013	Breeds of Sheep
8014	Breeds of Dairy Cattle
8015	Classes, Breeds & Varieties of Chickens & Turkeys
8016	Selecting Poultry
8017	Handling & Restraint of Livestock
8018	Dehorning Procedures
8019	Injection Procedures
8020	Forms of Animal Identification
8021	Castrating and Docking Procedures
8037	Breeds of Horses

V.A. I PLANT SCIENCE (13 topics)

8058 Economic Importance and Major Areas of Crop Production
8059 The Major Areas of Crop Production, State, Nation, and World
8060 Plant Structure - Function of Plant Parts
8061 How Seed Germinate
8062 How Plants Make, Use and Store Food
8063 Classification of Plants - Field Crops
8064 Selection of Plants - Field Crops
8065 Sexual and Asexual Reproduction
8066 Disposing of Plant Residue
8067 Land Preparation
8068 Application of Fertilizer
8069 Irrigation
8070 Seed Selection, Planting Equipment, and Planting Techniques

V.A. I SOIL SCIENCE (7 topics)

8051 Influence and Formation of Soils
8052 Components of Soil and Its Properties
8053 Soil Classification and Sampling
8054 Conserving Soils
8055 Soil Water Importance, Loss, and Drainage
8056 Water Requirements of Crops
8057 Soil Water Conservation Measures

V.A. II AGRICULTURAL MECHANICS (13 topics)

8039 Arc Welding - Introduction and Fundamentals
8040 Arc Welding - Electrodes
8041 Arc Welding - Basic Steps
8042 Arc Welding - Weld Joints, Out-of-Position Welding and Other Uses of the Arc Welder
8043 Oxyacetylene - Cutting & Welding
8044 Power Hacksaw and Metal Bandsaw
8045 Grinder
8046 Portable Electric Saws - Circular Saw and Sabre Saw
8047 Drill Press
8048 Bench or Circular Saw
8049 Concrete - Estimating the Amount and Mixing
8050 Concrete - Form Construction, Placing, Finishing & Curing
8114 Fuel Conservation and Electric Energy Conservation

V.A. II ANIMAL SCIENCE (12 topics)

8071 Circulatory and Respiratory Systems
8072 Skeletal and Muscular Systems
8073 Digestive Systems
8074 Feed Nutrients and Classes of Feed
8076 Digestion and Absorption
8077 Rations
8078 Bacterial, Viral, Nutritional, Fungal, and Miscellaneous Diseases
8079 External and Internal Parasites of Livestock
8080 External and Internal Parasites of Poultry
8081 Live Animal Judging and Grading
8082 Evaluating and Grading Carcasses and Wholesale Cuts
8083 Poultry Judging and Poultry and Egg Grading

V.A. II PLANT SCIENCE (13 topics)

8093 Identification and Selection of Range and Pasture Plants
8094 Identification and Selection of Trees & Poisonous Plants
8095 Control of Undesirable Plants and Animals
8096 Reseeding of Grazing and Forest Lands - Protection Against Fire
8097 Grazing and Harvesting Grass and Forest Lands
8098 Plant Requirements
8099 Inorganic and Organic Fertilizers - Types of Blends
8100 Methods, Rates, and Time of Fertilizer Application and Fertilizer Regulations
8101 Identification and Control of Insects
8102 Identification and Control of Plant Diseases
8103 Safe Use of Agriculture Chemicals
8104 Mechanical Weed Control
8105 Weed Control With Chemicals

V.A. II SOIL SCIENCE (9 topics)

8084 Basic Soil Nutrients
8085 Uses of Fertilizer and Fertilizer Materials
8086 Importance of Organic Matter
8087 Recognizing Soil Deficiencies
8088 Secondary Nutrients, Micro-nutrients and Soil pH
8089 Soil Characteristics as Associated With Land Features
8090 Identifying Land Use Classes
8091 Land Judging
8092 Principles of Land Use

V.A. III AGRICULTURAL MANAGEMENT (17 topics)

8143 Importance of Good Management and Basic Decisions
8144 Supply and Demand and Diminishing Returns
8145 Comparative Advantage and Resource Substitution
8146 Importance of Credit
8147 Sources of Credit and Interest Rates
8148 Credit Instruments
8149 Principles of Borrowing
8150 Banking Procedures

8151 General Rules of Planning a Farm Business and Determining the Enterprise and Farm Cost
8152 Planning Equipment Purchases and Investment Planning
8153 Purpose and Types of Records, Depreciation, and Formulating Income and Financial Statements
8154 Income Tax Returns and Social Security
8155 Life, Hospitalization, Building, Fire, and Windstorm Damage Insurance
8156 Crop, Livestock, Vehicle, and Liability Insurance; Title Policies; a Texas Workmen's Compensation Insurance
8157 Marketing Agricultural Products and Market Demands and Outlets
8158 Government Marketing Programs and Marketing Cooperatives
8159 USDA Programs and Services

V.A. III AGRICULTURAL MECHANICS (9 topics)
8111 Basic Principles of a Four-Cycle and Two-Cycle Engine
8112 Disassembly and Reassembly of the Small Air-Cooled Engine
8119 Electrical Safety
8120 Electrical Wiring
8121 Electric Motors
8122 Tractor Maintenance, Operation and Daily Care
8123 Tractor Maintenance, Servicing Air Cleaners & Lubrication
8124 Farm Water Supply and Sanitation - Pipe, Plumbing, Skills and Symbols
8125 Farm Level - Setting Up and Using Level, Staking Out Foundations and Fences, and Differential Leveling

V.A. III ANIMAL SCIENCE (11 topics)
8132 Genetics
8133 Animal Reproduction
8134 Breeding Systems
8135 Methods of Breeding and Breeding Livestock
8136 Care of Livestock at Parturition
8137 Pregnancy Diagnosis (Palpation)
8138 Artificial Insemination
8139 Carcass Evaluation
8140 Performance and Production Testing
8141 Economic and Aesthetic Values of and Environmental Factors Affecting Wildlife
8142 Planning Livestock Facilities

V.A. III PLANT SCIENCE (6 topics)
8126 Maintaining Pure Lines
8127 Hybridization
8128 Harvesting Methods and Equipment
8129 Handling, Grading, and Packing
8130 Classifying and Selecting Fruits and Vegetables
8131 Classifying and Selecting Ornamental Plants

V.A. III SOIL SCIENCE (9 topics)

8160 Soil Mapping Units
8161 Capability Maps and Numbering Systems
8162 The Use of Soil Maps
8163 Basic Considerations for and Economic Importance of Soil Management
8164 Managing Soils for Field Crops
8165 Managing Grassland Soils
8166 Soil Conservation Service and Soil and Water Conservation Districts
8167 Agricultural Stabilization and Conservation Service
8168 Watershed Districts and Other Organizations Promoting Soil and Water Conservation

V.A. IV AGRICULTURAL MANAGEMENT (11 topics)

8195 Planning for Production
8196 Planning Soil and Water Conservation and Livestock Programs
8197 Planning the Cropping System and Planning the Use of Labor
8198 Planning a Wildlife Management Program
8199 Water Rights
8200 Boundary Lines, Fencing Rights, Rights of Way, Easements, and Livestock and Seed Laws
8201 Factors Involved in Farm Appraisal
8202 Legal Instruments
8203 Marketing Livestock and Livestock Products
8204 Marketing Crops
8205 Market News and Price Quotations

V.A. IV AGRICULTURAL MECHANICS (16 topics)

8169 Planning for Construction & Selecting Building Materials
8170 Sketching Construction Plans and Determining Bills of Materials
8171 Farm Truck and Tractor Cooling Systems
8172 Farm Truck and Tractor Fuel Systems
8173 Function and Maintenance of the Ignition System
8174 Function and Maintenance of the Lubrication System
8175 Function and Maintenance of the Power Train
8176 Function and Maintenance of the Braking System
8177 Function and Maintenance of the Hydraulic System
8178 Function and Maintenance of the Steering System
8179 Function and Maintenance of Tires
8180 Farm Machinery Inspection and Reconditioning
8181 Farm Machinery Adjustment
8182 Advanced Oxyacetylene Welding and Brazing
8183 Concrete Masonry
8184 Planning and Building Farm Fencing

V.A. IV ANIMAL SCIENCE (4 topics)

8191 Livestock Registration
8192 Breed Association Classification and Certification
8193 Specific Pathogen-Free Program
8194 Preconditioning Livestock

V.A. IV SOIL SCIENCE (6 topics)

8185 Soil Testing Methods and Procedures
8186 Using Soil Test Results
8187 Land Appraisal
8188 Evaluating Productivity of the Soil
8189 Managing Acid and Alkaline Soils
8190 Managing Saline and Sodic Soils